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PAPERS

ON

DERMATOLOGY

BY

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PREFACE.

On commencing the preparation of a Third Edition of Lectures on Skin Diseases delivered at St. Vincent's Hospital, the recent treatises on that subject appeared to me so abundant that I decided instead, to offer for the perusal of the profession, portions only of those lectures and subsequent papers, revised and amplified.

E. D. MAPOTHER.

32, *Cavendish Square, London,*
March, 1889.

CONTENTS.

PAGE

The Vascularity of the Skin and the Communications of Subcutaneous with Visceral Veins 5

The Correlations of Eczema and Gout 18

An Anomalous Form of Eczema 28

(1) General Ichthyosis developed after Middle Age. (2) Ichthyosis and extensive Lupoid Ulcers co-existent 30

The Induction of Elephantiasis by Posture 39

The Purpura of Epidemic Meningitis 44

The Treatment of Angioma 51

Plastic Operations for the Mouth and Nose 59

The Treatment of the Syphilides 71

Irish Sulphur Spas 87

Index 103

THE VASCULARITY OF THE SKIN AND THE COMMUNICATIONS OF SUBCUTANEOUS WITH VISCERAL VEINS.*

Professor Michael Foster has happily said that "all distinctions between physiology and pathology are as fictitious as would be efforts to divide meteorology into a science of good and a science of bad weather." In connection with no part of the body can the remark be more fitly applied than the skin. The vascularity of this organ and the effects upon it of various normal and abnormal influences are subjects of great importance, whether considered by the physiologist or the pathologist.

So great is the total capacity of the vessels in and beneath the skin that it is probable one-sixth of the blood of the body could be therein contained if attracted by such an agent as a hot bath. Only one other organ, the liver, exceeds it in vascular capacity. The vast amount of blood which is sent to the skin, and the time it may stay there, as will be just now explained, account for the fact that toxic agents, organic or inorganic, manifest themselves there so plainly. Of the former the exanthems, perhaps including syphilis, and eczema, and of the latter, silver staining afford examples. The quantity of silver nitrate which has stained the entire skin could never have done so if it were equally distributed by the blood all over the tissues. It is only in the venous system that any undue amount of blood can be contained. The eminent physiologist above named clearly expresses the conditions under which the amount of blood varies :—

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* Proceedings of the Surgical Society, Ireland, February 18th, 1876.

"When the temperature of the air is low, the vessels of the skin are constricted and the skin is pale; when the temperature of the air is high the vessels of the skin are dilated and the skin is red and flushed. In both these cases the effect is mainly a reflex one, it being the central nervous system which brings about augmentation of constriction in the one case, and inhibition in the other, though possibly some slight effect is produced by the direct action of the cold or heat on the vessels of the skin simply. Moreover the vascular changes in the skin are accompanied by corresponding vascular changes in the viscera, chiefly abdominal, of a reverse kind. When the vessels of the skin are dilated those of the viscera are constricted, and *vice versâ*, so that a considerable portion of the whole blood ebbs and flows, so to speak, according to circumstances, from skin to viscera and from viscera to skin. By these changes, as we shall see later on, the maintenance of the normal temperature of the body is in large measure secured."

The vaso-motor nerves are peculiarly abundant round the arteries of the skin and come into play in the phenomena of blanching and blushing, the nerve centre being in the medulla oblongata.

The anatomical arrangements of the vessels is quite unlike those of any other part, for three strata, or more or less defined planes may be made out—the deepest composed of arteries and veins in the areolar tissue, next coarser capillaries in the lower portion of the derma, and thirdly just below the papillary layer a sheet of fine capillaries with very thin walls to permit respiratory changes, and with scarcely any space between them. In injected preparations there seems room for nothing else but capillaries. It is from this vascular sheet that perspiration mainly exhales, and Unna insists that the convoluted glands secrete oily matters not watery sweat; on the palms and soles where there are no hairs the coil glands must afford the lubricant material.

There is also a separate supply for each tactile papilla,

hair papilla, sweat or oil gland, and mass of fat, so that the diverse functions of these organs can be independently performed on receipt of the necessary blood. Each papilla has an afferent and an efferent capillary joining above in a loop or loops where much dilatation is found. The arrangement is something similar to that of the Malpighian tufts of the kidney and a like effect is produced, namely, a slowing of the blood movement. The functions of the skin in respect to heat and respiration are thereby aided. Here much more heat is given off than produced, and hence the blood becomes cooler in proportion as its stream flows slowly.

The vessels abound more at the flexor aspect of the limbs where also the cuticle is thinner—here, therefore, constitutional eruptions, the syphilides and eczema for example, appear most freely. At the extensor surfaces non-diathetic diseases, psoriasis (and perhaps icthyosis may be in that category) will be found. The fibrous tissue and the vessels are arranged in a sloping direction from the spine downwards and forwards in the upper half of the trunk, more horizontally in the lower. In other places, where the cleavage of fibrous tissue is not regular, the vessels assume an arrangement more or less circular. Various eruptions are found to follow these modes of distribution.

The lymphatic vessels are no less extensive, and free communication is kept up between them and the great serous cavities by the stomata of the latter, as pointed out by Mascagni so long ago as 1770.

The practical application of these points may be considered under two heads, (1) Topical blood-lettings and derivatives, and (2) Clothing.

(1) When we draw blood by leeching, cupping, or incision, to relieve hyperæmia of organs or regions, we do not expect that the abstraction from the amount of the entire circulating fluid will afford the aid which is so often given. Each leech, for instance, removes scarcely $\frac{1}{300}$th of the total blood, and a dozen of them applied to an adult cannot be supposed to

depress sensibly the general vaso-motor force. For the control of the vaso-motor influence of a special organ or region no therapeutical agent can as yet be selected with confidence.

Topical blood-letting acts in two different ways—namely, (1) by deriving from the arterial circulation of the affected part—that is, letting blood easily escape from other vessels having a common origin—and (2) by emptying the veins which carry back the blood from the part towards the heart. The vessels then can resume their normal calibre, and can take up effused materials, which they do with surprising quickness. Dr. George Johnson's well-known illustration of the first way is most accurate and intelligible :—When his opposite neighbour, Poole, the royal tailor, illuminates for some glad event, the Savile-row main is largely depleted, and gas is derived most inconveniently from Dr. Johnson's house. The gas-mains have, however, no regulating power, such as the muscular arteries have, yet this derivative mode of bleeding is seldom applicable, inasmuch as few arterial trunks send branches to organs and likewise to superficial spots whence we may bleed. For example, to relieve hyperæmia of the tissues supplied by the ophthalmic branch of the internal carotid artery, can section of a branch of the temporal offset of the external carotid avail much?

Still more useless is bleeding from the capillaries or veins which indirectly communicate with the vessels of the inflamed organ, and absurd is the only term applicable to the French practice of revulsion—for instance, leeching near the knees in cases of congested uterus or ovaries.

The blood returning from an inflamed organ is that most altered by the pathological process. For this reason, and to give direct relief to the vessels of the part, we should, if possible, drain from the actual vein, or the veins with which it connects most fully and quickly, provided they be within reach.

I purpose to illustrate some of these anatomical relations, and if many of them are already known to you, bear with any attempt to attach to descriptive details memoranda of practical interest.

Unaware that most organs can be drained from their special veins, surgeons of the past generation often felt that the only resource was general blood-letting. For example, let me cite Mackenzie (1835), who declares "scarification of the conjunctiva is useless, or even hurtful, in iritis. . . . The patient who could not previously discern the face of a person standing before him, except as a mere mass, will often exclaim, on opening the eye after venesection, that he sees clearly." This would be due to rapid absorption from the aqueous humour. Direct incision of the congested conjunctiva is plainly superior to leeching the temple in superficial inflammation.

The ophthalmic vein empties into the cavernous sinus, which connects with the two petrosal and lateral sinuses. By leeching, therefore, over the pterygoid plexus, near the angle of the lower jaw, and over the mastoid emissary vein, we drain very directly from the eye, and there is now in St. Vincent's Hospital a man whose eye was saved from the ravages of iritis by these means. In a case of retinal apoplexy which Dr. Jacob lately saw with me, the best results followed leeching and subsequent blistering over the mastoid. The late Professor Jacob always selected this point for leeching in ophthalmic cases. That it was the usual bleeding point in every form of disease amongst the Egyptians appears from the writings of Alpini 300 years ago.

The cerebral hemispheres send their blood back by the superior longitudinal sinus, which freely communicates with veins on the septum of the nose, through the foramen cæcum, and, with those of the scalp, through the parietal foramen, about one inch and a half in front of the posterior superior angle of that bone. If delirium pointing to active, or coma to passive hyperæmia suggested blood-letting, it can be done on the nasal septum—a place from which salutary bleeding so often arises spontaneously. In no part of the mucous tracts are the vessels so near the surface. It may be noted that epistaxis does not occur from domesticated animals, and in their skulls the foramen cæcum (or, as it might be better named, the superior ethmo-frontal opening) does not

exist. The circulation in these creatures is not urged on occasions such as arise in man's brain-work, and their horizontal posture renders valves in the veins of the head and neck necessary, whereas man does not possess them. Epistaxis can never be regarded as a mere local flow, but as an escape for congestions of more important parts than the nasal membrane.

If the site of the emissary parietal veins, which is about four inches in front of the occipital protuberance, be made clear for leeches, by cutting the hair and washing the scalp, blood will freely flow. In sunstroke and in severe concussion it is believed that considerable and sudden arrest of circulation occurs, and blood-letting at the above-named points would be indicated. Extensive and promiscuous leeching of the scalp can only act in the way of general blood-letting. If hemiplegic symptoms show that the base of the brain needs depletion, leeching over the mastoids will give any amount from the lateral sinuses. Otitis is relieved in the same way, as all the blood of the organ of hearing escapes by the same channel. The veins at the back of the neck communicate with the lateral sinuses also through the mastoid, and the arteries there anastomose with branches from the vertebrals; hence the efficacy of cupping and counter-irritation in this situation. In cases of erysipelas of the face and head, where delirium or coma had supervened, I have seen excellent effects from rapidly causing vesication in this region. The spinal veins are so intricate in their communications that depletion of any of them may be easily secured by drawing from the skin over any part of the vertebral column. The ready action of irritants like blisters, or depressants like cold in the same region, may be similarly explained. The great drain which aspiration to the chest secures might be utilised in head and spinal congestions by augmenting inspirations in the way suggested, for drowned persons, by Silvester, even if the patient were comatose.

The face and neck are more easily drained of blood than any other region, owing to the absence of valves in the

veins, and leeches near the angle of the jaw will draw both from the sinuses and from the tonsillitic and palatine veins, all of which freely communicate with the pterygoid plexus. If, however, a congested or œdematous spot along the mouth, pharynx, or larynx can be reached, the scarificator is to be trusted.

The difficulties and dangers of jugular venesection have banished the operation, but all its advantages can be had by leeching over the thyroid body, as the venous plexus there freely unites the superficial with the deep vessels returning from the head to the innominate veins. The rate of venous flow is here some 200 feet per minute, while in remote veins it is not one-tenth as rapid. The small size and compressibility of these surface vessels insures that canalisation is unlikely, and the flow from the leech-bites can be easily stayed. Leeches over the sternum can scarcely relieve congestion in the larynx or trachea, while they would draw very directly if fixed near the thyroid veins.

The veins from the pericardium mainly return to the internal mammary, and would be drained by leeches over the third, fourth, and fifth intercostal spaces at the edge of the sternum, especially on the left side. If, as so often occurs, there be pleuritis with pericarditis, the leeches will serve a double purpose, for the pleural veins also empty at these spots. Here, also, as the arteries supplying those membranes and the veins returning their blood are so closely contiguous, local blood-letting would act in both the ways I have mentioned—the deriving from neighbouring arteries and the emptying of veins returning from the inflamed part.

The lungs clothed with serous membranes, which isolate them from the chest walls, cannot be depleted by draining the surface of the front, sides, or lower part of the back of this region, but may be on the left side, where the superior intercostal receives the bronchial veins near the fifth intercostal space. At about the third intercostal space of the right side the bronchial veins join the azygos, a trunk which has already received the intercostals and left bronchial veins. The bronchial vessels mainly supply the mucous

surface, and can be drained by the sources just mentioned. The fittest site for leeching would then be over the third space, between the spine and scapula. Lately, in St. Vincent's Hospital, a girl, recovering from acute rheumatism, was seized with sudden and intense dyspnœa, due, it was believed, to pulmonary embolism. Free leeching in the place indicated gave the most surprising relief. Congestion of the pulmonary circulation, such as has been so often seen during periods of bronchitic mortality, could be better relieved by leeching over the thyroid plexus. When surgical injuries to the lungs arrest breathing power, and in all those frequent medical cases which obstruct the pulmonary circulation, and overload and palsy the right ventricle, thyroid bleeding seems clearly indicated. Venesection at the elbow can only relieve the general circulation as so many valves act between that point and the right heart. Over fifty years ago Professor John Reid proved the wonderful preventive power of jugular bleeding—especially from the lower orifice—over death in drowned and hanged animals, and those poisoned by drugs which paralyse muscular tissue. At all times blood easily passes from the right ventricle to the auricle. It must be remembered that the pulmonary veins are quite exceptional in having no larger capacity than the pulmonary arteries.

The abdominal wall is supplied by the internal mammary, lower intercostal, and epigastric vessels, while the organs within are connected with the aorta, and the portal, and inferior caval veins. They are, moreover, separated by a great serous cavity. Leeching the skin of the belly may, therefore, drain the inflamed parietal peritoneum, but cannot sensibly affect the circulation in the stomach, intestines, liver or spleen. These organs return their blood by the portal vein, and draining it at the rectum is the fittest indication when they are congested or inflamed, and every one must have observed the relief which bleeding piles afford in this way.

If, however, Luschka's statement (which I have been often able to verify), that the umbilical vein, or ligamentum

teres, of the adult is constantly pervious from the left branch of the portal to the deep epigastric be correct, leeching round the navel may be direct and effectual in inflammations of the liver and all other organs discharging blood by the portal vein.

For acute dysentery and other inflammatory affections of the abdominal organs in the tropics, a hundred or two of leeches have been used without avail, according to writers of the last generation, while half as much blood drawn quickly from the arm produced a profound impression on the system.

There is no organ which has so special a blood supply as the kidney. Insulated in a mass of fat, it joins no other part by vessels except on the left side the testis, by the spermatic vein. Renal congestion can, therefore, be scarcely influenced by leeching, or cupping the loins, and the good supposed to follow these measures must be attributed to the warmth, rest, and low diet which usually are enforced, the first determining to the skin to the relief of the renal arteries; the others checking the formation of nitrogenised compounds. The labour of the organ is lessened by all these means.

The testicle returns its blood by the spermatic veins and as these vessels pass through the groins and join the superficial veins of the region, leeching there is best calculated to relieve the organ. The veins of the scrotum return to the superficial pubic and epigastric, and puncturing them will be found valueless in cases of orchitis, whilst the risks of erysipelas or ecchymosis forbid leeches. Puncturing as deep as the tunica albuginea has been urged by Mr. Henry Smith, and it probably does the good by the loss of blood from the congested vessels. If the inflammation is confined to the epididymis, as is usually the case, puncturing the fibrous capsule of the body of the organ could scarcely act by lessening tension.

The anus has been often selected for leeching in hepatic congestions, but as it is only the superior hæmorrhoidal veins which return to the portal vein, any external bleeding

can only be indirect through the great plexus formed around the gut immediately outside its mucous membrane. The middle and inferior hæmorrhoidal veins go to the internal iliac. In the male nothing can be more intimate than the anastomosis between the veins of the bladder and prostate and of the rectum, and hæmorrhage from one of these regions is often vicarious with that of the other. Cases often arise in which the cessation of hæmorrhoidal bleeding is followed by hæmaturia, the source of the blood being clearly vesical. To draw blood in acute cystitis or prostatitis the surface of the rectum is the fit site, and as leeches will scarcely fix there, it is better to puncture one or two veins with a narrow long bistoury, the gut being held open by a speculum, and the flow promoted by warm lavements.

While it must be acknowledged that much has been gained from the practice of letting blood by direct incision of the womb for congestive or inflammatory affections, it appears necessary that in the case of virgins we should seek some other source for depletion—the need, on account of moral reasons, is obvious—and anatomically the uterine plexus is but slightly developed in the unimpregnated, and depletion from the labiæ or rectum will drain more fully. Around the rectum there is a free junction between the superior hæmorrhoidal and uterine veins.

The veins in the limbs, deep and superficial, join at most numerous points, in order that the circulation shall not be interrupted during muscular action, and for this and other physiological reasons these vessels when under a line in calibre have no valves. The strong fasciæ stretched by muscles at the groin, axilla, and root of neck act as pumps, not unlike the lymph-hearts of cold-blooded animals, and urge the blood towards the viscera. Leeching the skin over an inflamed joint or periosteum is, therefore, the same as opening the vessels coming from the invaded part, and hence the undoubted efficacy of the measure in such cases. By the way, it is remarkable that we so rarely find the muscles the seat of inflammatory action. The

rapid flow of blood, urged on by the muscles themselves, which are like hearts to the veins, may account for the immunity, whereas the fibrous tissues, so sparingly supplied, are often inflamed in the subacute way, and topical blood-letting is most efficacious. When treating aneurisms by complete pressure, leeching over the sac should give aid, by lessening the tension of the arrested blood, relieving it of serum and increasing the fibrin. In cutaneous inflammations and congestions, erysipelas, acne, &c., the flow of blood and its effused fluids by incisions is too obviously efficacious to need comment.

Venesection at the bend of the elbow is almost a thing of the past, and to the question of general blood-letting I do not allude, but in severe whitlows and synovitis of the wrist-joint it gives striking relief as a topical measure.

The same may be true of opening the internal saphena vein in acute inflammation of any part of the lower extremity.

As to the modes of topical bleeding, leeching is very generally applicable, and the German practice of puncturing the left side of the animal so as to open the last of the gastric pouches—Bdellatomy, as it is termed—is worthy of imitation, as blood flows far more rapidly, and the quantity is trebled from each bite. Cupping over the bites when the leeches have dropped off draws blood quicker than stupeing, and the bleeding will more readily stop, for the blood quickly coagulates, its gases being exhausted.

Without dread on our own part and repugnance on the part of patients, we cannot order the introduction of leeches into the nasal, pharyngeal, rectal, or vaginal cavities; and puncturing the veinlets and aiding the flow by irrigation with warm water may be well substituted. Incisions draw blood more quickly, and the bleeding is more easily stopped. I have often bled from the nasal septum by touching the mucous membrane at three or four points with a long sharp bistoury, the ala nasi being fully everted. The curved abscess lancet, or the pointed uterine scarificator of Meyer, is in some situations more convenient. Collin's modification

of Baron Heurteloup's artificial leech is most effectual on the skin, and it might be lengthened to suit for use in some mucous passages. The circular shape of the blade secures cross section of the little vessels, and the pump covers six of the incisions if necessary.

The action of topical irritants and absorbents may be explained in the same way as the action of depleting measures in the various sites pointed out.

(2) CLOTHING.—The essential points of a material for under-wear are that it shall be a bad conductor of heat, porous to allow of the evaporation of sweat, elastic so that it shall not impede movement, and sufficiently smooth on the surface to avoid irritation of the skin. Wool alone possesses this combination of qualities, and it can be adapted for every part of the body. The backs of waistcoats should always be made of it. It is especially suitable for stockings and the linings of boots, as the keeping of the feet warm and dry promotes remarkably the general circulation and the regulation of temperature. Cold to the feet mainly affects the cranial circulation, and chill to the back that of the respiratory tract.

From anatomical data already mentioned, it will be understood that the regions which should be above all safeguarded against sudden changes of temperature are the spaces between the scapula and along the edges of the sternum, the anterior wall of the abdomen and the perineum. Chills in these situations tend towards congestion and subsequent inflammation of highly vascular organs, most of which are concerned in the chemical changes on which animal heat depends. It is believed that four-fifths of the heat of the body is normally lost from the skin and nearly all the rest from the lungs. In pyrexial diseases, cold to the skin is the most potent of antipyretics.

Changes of temperature quickly occurring produce inflammations most readily. That cold being applied to several individuals in the same way, say, for example, by immersion, each shall suffer injury in a different organ,

has not been satisfactorily explained. That the lungs shall most readily suffer is plain, as on them is thrown the cooled blood from the skin, by the contraction of the muscular tissue in the derma and in the arteries. The blood in the skin has been copious and probably heated by exercise, but by chill it is driven to internal organs at a lower temperature than of that already in them.

Habitual cold baths increase the activity of the muscular tissue of the skin and its vessels, just as gymnastics do in the case of the locomotory muscles. When they contract under the influence of cold, the blood is driven inwards and there is less loss of heat by radiation or transpiration. The "catching of colds" is then prevented by this function of the skin.

Greasy substances smeared on or rubbed into the skin check evaporation and the loss of heat, and under some circumstances the habit of the ancients in this respect might well be revived.

THE CORRELATIONS OF ECZEMA AND GOUT.*

The circumstances which produce local outbreaks of dermatitis like eczema are well understood. When, on the contrary, the latter disease affects large surfaces of the body without any topical source of irritation, is symmetrical, catarrhal in its main features, apt to relapse (and as is frequently the case, traceable in several members of the same family), some constitutional cause evidently exists, and should be sought for if we wish to treat the disease scientifically. The French call this cause "the dartrous diathesis," dartre being a popular term synonymous with "heat in the blood" in our vernacular; they confess ignorance of its, nature, and only recognise it by aptness for relapse in eczema and lichen, and psoriasis as well. Alibert added all forms of lupus, and Hardy adds impetigo and pityriasis; but surely there can be no common constitutional cause for such diverse maladies. Many authorities, notably Bulkley (1881), regard "eczema as a constitutional affection in which it is often impossible to trace any local cause;" and fairly he objects that 180 distinctive names may be found in the literature of the subject. But all this advances our conceptions no further than the definition in Littré and Robin's Dictionary:—"Diathesis is a general tendency, in virtue of which an individual becomes the subject of several local affections similar in their nature." Ever since I read the following passage in Golding Bird's "Urinary Deposits" I have regarded excess of uric acid in

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* Proceedings of the Surgical Society, Ireland, Jan., 1873.

the blood as this constitutional cause. He says, "I have been two or three times consulted in the cases of patients lying bed-ridden from rheumatic (? chronic) gout, in whom one or both legs were covered with an eczematous eruption and the parts on which the exudation from the surface had dried had been actually frosted with microscopic crystals of urate of soda." In the acute stage of eczema the uric acid would be decomposed during the inflammatory process; in the chronic this insoluble and therefore irritating substance would keep up, if it did locally originate the disease. It must never be forgotten that uric acid does not act on litmus paper, and that the blueing of red paper is no proof of the absence of the acid in eczematous fluid, which is usually alkaline.

The following facts seemed to me, then, to prove that the gout poison was the cause of eczema:—

Many reliable observers have obtained uric acid and urates from the exudation of eczema, and their increase in the urine in the chronic or drier stages of the disease is undoubted. The old writers often called eczema of the legs "*fluxus salinus*"—the vulgar term is now "the weeping leg."

There is great increase of the constituents of fibrin in the blood and lymph, and the plasma exudes and spontaneously coagulates on the raw surface. The lymphatic vessels are probably, more than the veins, the source of this exudation, and they are, it may be, in a state of chronic congestion or inflammation, and fail to fulfil their function in nutrition. Sir W. Roberts, of Manchester, has seen eczema on the abdomen discharge chylous fluid, the urine containing a similar product, and the contents of the white vesicles in phlegmasia dolens are certainly of the nature of lymph and chyle.

Both diseases are characterised by great tendency to œdema by osmosis from the minute blood and lymph vessels. Loss of cuticle, of course, is universal in eczema, and occurs in three-fourths of the cases of gout when localised, in the way of desquamation, itching being marked in both. Friction readily vesicates the skin of the gouty,

and, as Sir J. Paget has shown, irritants are sure to bring out eczema in such persons.

Both are polymorphous. When one considers that eczema offers as many protean aspects as the syphilides, some blood condition must be appealed to for explanation. It must be, however, confessed that the catching febrile exanthems, shew simpler features. From 6 to 24 months is a very common duration of eczema, and it is hard to conceive the persistence of a local cause so long. Gout can be shown to be hereditary in about three-fifths of the cases, and such predisposition can be shown in about an equal proportion of cases of general or, at least, extensive eczema. The former disease may appear in alternate generations with eczema, as is also true of uric calculus and gout. The greater proneness of the male sex is observable in both diseases. During some thirty years of female life a periodical discharge lessens liability to these and other maladies. Errors in diet, mainly in the way of excess of nitrogenous food and fermented liquors, are common in many of those who have eczema as well as gout. Dr. Bulkley, of New York, believes that eczema in suckling infants can be, in most cases, traced to digestive faults on the part of the nurse-mother. Want of well-regulated muscular exercise, with its penalty, sluggish liver and lithæmia, may be noted amongst the habits of those prone to the disease in adult life; and again, the want of fruit and vegetables, from which all the soluble parts are not wasted by boiling. While confections and dried fruits are most unsafe, glycose is an element of diet perfectly safe for the gouty and eczematous, although not for the obese. Sir J. Paget's alliterative and therefore easily remembered rule of diet for patients with eczema is full of truth :—" Avoid what is strong, salt, sour, or sweet."

In reptiles the production of uric acid (which is so largely excreted by their kidneys) appears to have little relation to diet or muscular movement. In the Dublin Zoological Gardens a large alligator lived for four months without any food and little movement; yet, after death, deposits of urates were found in the joints and other places

to an astounding amount. Coldness and slow circulation conduced towards their deposit, but it is noteworthy that the salt has never been found in the blood of reptiles or birds. It is readily excreted by their open tubules and passages.

Every one must have remarked the frequent concurrence of symptoms of gout or of rheumatic gout and eczema. The Chelsea pensioners and the poorer agricultural people of Ireland exhibit this concurrence on the largest scale. I have seen very few cases of extensive eczema which had not been preceded or accompanied by what is so well known as acid or gouty, or rather, "pre-gouty," dyspepsia. There is much reasonableness in the belief that the gastro-intestinal mucous membrane may share with the skin the local conditions of eczema, and the effects of counter-irritants on the skin in dyspeptic cases may be thus explained.

Sir J. Paget has told us that cystitis may result from the retrocedence of eczema. Exudation of urate of soda from the pulmonary mucous membrane, and the formation of tophi in the bronchial tubes occur, without doubt, and in 1873, Dr. J. W. Moore, of Dublin, identified crystals of uric acid in the sputa of a gouty patient. Aretæus, in the second century, wrote of gouty asthma. Concurrence or alternation of eczema and asthma are frequent. I am, at present, attending a young gentleman in whom the alternation has been observed for seven years. The marked improvement which lithia produced suggests that it is of the gouty variety. Catarrh of the respiratory mucous tract is very common in eczematous patients. The condition of the mental and sensory function, so well expressed in the word "neurasthenic," is usually to be observed before the outbreak of either malady.

It is an aphorism of Hippocrates that gouty attacks are most frequent in spring and autumn, and the same may be undoubtedly said of eczema.

The parts most distant from the circulatory force of the heart and least vascular, for example, the extremities and the external ears, are frequent seats of each disease, especially when they remain habitually cold, as the urates

are most easily deposited during a stasis more or less complete. I have seen chilblains very frequently in the children of gouty parents. The feet in many cases suffer alone from gout, the urate being there retained, as they are the most distant points of circulation, and because they are so subject to slight injuries. Obstinate eczema of the dorsal and palmar aspects of the hands occurs nearly always in persons markedly gouty. That dire affliction eczema and pruritus ani has been often said to be gouty. My experience leads me to regard it as a local affection often amenable to calomel ointment and other mercurial applications. I find that the late Mr. Quain (whose note-books I have been permitted to use) treated it with alterative doses of blue pill.

And lastly, the plan of treatment proven to be useful in gout is usually successful in eczema, eliminatives of the insufficiently oxidised products, in a word.

Lithia is found of the greatest use, as would be anticipated from its extraordinary powers of dissolving and combining with urate of soda and uric acid, which can be verified on calculi in the laboratory. It forms over five times as soluble a salt as soda does. It is very difficult to explain why this potent alkali is so much neglected by writers on therapeutics. The superiority as a sedative of the lithium bromide over the others is patent. Lithia never fails while passing out as a urate to act as a diuretic, and the derivative influence from the skin to the more extensive surface of the kidney can be easily understood. While lithia does not depress the heart like potash, it is like soda destructive of red blood cells. Benzoate of lithia is a salt of great promise in such cases. I have very often applied washes containing carbonate of lithia to eczema in a weeping state, with surprising benefit, presumably from its solvent power over urates. On the other hand lead washes are often hurtful by forming an insoluble compound, which would interfere with cuticulation. If the lead were absorbed a fit of gout might be brought on, for the metal has wondrous power in fixing uric acid. In local dermatitis,

on the contrary, their astringent action may be useful. It may be here noted that washing eczematous surface usually does good if the water be soft and pure, such as those of Dublin and Glasgow. Elsewhere water may be made softer for ablutionary purposes by anti-calcaire, or by boiling bran in it and afterwards straining. For drinking, "Salutaris water" is very suitable, if no naturally soft one or boiled and filtered rain water can be had. At all events plenty of water taken on an empty stomach is the way to avoid the deposit of urates in the urine—the obvious point in the management of all gouty persons, especially those apt to form calculi. The objection to washing had been maintained by Sir Erasmus Wilson, perhaps because it would interfere with the benzoated oxide of zinc ointment, of which he was so enthusiastic an admirer. The temperature and time and mode of application of water must be carefully regulated. If the daily sponge bath be adopted by those predisposed to gout or eczema, attacks may be warded off better than by any other agent, as the alkalinity of the urine caused by it demonstrates. Drying must be done gently, by dabbing and without rubbing in the latter disease. Freedom from gout in warm climates is due to increased skin action.

Several years ago I usually combined colchicum with lithia, but each was tried separately in the following case: Patrick Moran, æt. fifty, was admitted January 15th, 1873, on recommendation of Dr. Lynch, of Glendalough, to St. Vincent's Hospital. For seven weeks he had suffered from eczema on the fronts of both the arms and forearms, and of the thighs. He had been constantly subject to acid eructations for years, and had always drunk freely of porter. The urine of the twenty-four hours from 10 A.M. on the 15th, to 10 A.M. on the 16th, was collected, as was that of the succeeding ten days. For the first two days during which no treatment was employed the following was the record:

16th.—Urine 26½ ounces; specific gravity, 1028; acid.

17th.—Urine 24½ ounces; specific gravity, 1030; very acid, turbid from urates.

Fifteen drops of wine of colchicum were thence given thrice daily, and on

18th.—Urine, 22½ ounces; specific gravity, 1031; very acid, turbid from urates.

19th.—Urine 24 ounces; specific gravity, 1031; very acid, turbid from urates.

The dose of the wine of colchicum was increased to 30 drops thrice daily, and for the four following days it produced three or four small evacuations from the bowels daily.

20th.—Urine, 26 ounces; specific gravity, 1030, acid.

21st.	„	40	„	„	„	1020, „
22nd.	„	37	„	„	„	1023, „
23rd.	„	20	„	„	„	1026, „
24th.	„	34	„	„	„	1030, „

On the 24th, as the eczema was not much improved, I prescribed five grains of citrate of lithia and twenty grains of citrate of potash thrice daily, the former being prominent as a solvent, the latter as an antacid.

25th.—Urine, 49 ounces; specific gravity, 1018, neutral.

26th.	„	38	„	„	„	1028, „
27th.	„	39	„	„	„	1029, „
28th.	„	42	„	„	„	1025, „

On all of the last four occasions the urine was of an inky tint, owing to the colouring matter which under the free use of carbolic acid ointment had been cast off by the kidneys. The morbid process was at the last date almost wholly absent from the parts attacked. This specific action of the drug often marks rapid improvement in the disease. In 1885 I saw with Dr. Laffan of Tara the most extensive case of eczema I had ever seen except in the St. Louis Hospital, Paris. Carbolic acid had been freely applied to the surface, and surprising amendment took place concurrently with discoloration of the urine.

It appeared from the details of the amounts and specific gravities of the urine in the hospital case, that colchicum had no power of increasing the excretion of the solids of urine, and, indeed, it is now generally believed to check the formation of urea and uric acid, a fact anticipated by the

sagacity of Dr. Graves, whose physiological deductions were so remarkable. Recent experiments of Dr. Paton tend to prove that that drug increases the excretion of uric acid. The efficacy of sulphuretted and other mineral waters in gout and eczema will be set forth in a future paper especially as regards the spas of Ireland. Then there is the negative evidence that certain drugs are equally inefficient in the two diseases; arsenic, for example, serves no purpose in gout and as to its administration in eczema and indeed in any skin disease, excepting those affecting the cuticle, I fully endorse the view of Dr. Hyde of Chicago. "In the first edition of this treatise it was stated that an unprejudiced view of its action even in cases properly selected would justify the conclusion that arsenic is a remedy of uncertain effect and disappointing. Subsequent investigations made particularly by American observers has more than established this position." Miss Nunn, of Boston, an expert histologist, has shown that it acts solely on the Malpighian layer.

Some will regard gout and eczema unrelated, because they view the former a disease of high life alone; but since porter has become more largely consumed in Ireland, it commonly appears in the poorest classes, as has long been the case in England. The observant Sydenham regarded as useful "London small-beer hop'd or unhop'd" (earliest translation), and in these days no harm results from the weaker of the dry ales brewed at Burton and from several varieties of wines (not acid) and spirits in gouty and eczematous cases, if used very moderately at meal times. Inaction of the skin is another promotive of gout, which is largely in operation amongst our unwashed dispensary patients.

I have, then, striven to show that constitutional eczema depends on the gouty diathesis, and therefore should be treated according to the well-known therapeutic indications observed in that condition. The growth of modern opinion is in the direction of making the treatment largely interparoxysmal and hygienic. The fault above all which leads to gouty and dyspeptic states is neglect of the

requisite daily action of the bowels. A new source of danger therefrom has been lately proven—the absorption of the ptomaines and acids from the fæces when retained.

When I advanced these views in 1873, at the Surgical Society, they were strongly supported by the late Professor Benson. "He considered there was an intimate connexion between gout and eczema. A few years ago he had to treat a gentleman dreadfully afflicted by gout, manifesting itself in dyspepsia and a derangement of every part of his system, not showing itself very much in the joints, but rather in general constitutional disturbances. He was so terribly afflicted by the disease that his life was made miserable and endangered by attacks in the head and stomach. At length eczema began to show itself; it covered the greater part of his body, his face and hands excepted, and from that moment he never had any symptoms of gout for two years until the eczema disappeared, and then some few symptoms of the gout returned. That case, with the recollection of others of a somewhat similar kind, convinced him that there was an intimate connexion between the two diseases—that eczema was the outward manifestation of gouty poison; and he found that eczema was much benefited by the remedies he used under the impression that it was a gouty affection."

The deposit of urate of soda between the skin and cartilage of the ear was first noted as an occurrence of very great frequency by that veteran practitioner. The great authority of Sir A. B. Garrod may be cited as to the relations of the maladies. In his treatise (1876) he speaks of "Eczema as constantly met with in gouty individuals. It may precede, accompany or alternate with articular gout. In one case the skin disease appeared to be made worse by the internal use of arsenical preparations, but yielded to a treatment adapted to the cure of ordinary gouty inflammation." In a paper at the International Congress, 1881, he calls eczema "the skin development of gout," and believes that it will be found in probably over 30 per cent. of the cases of gout which have been of long

standing. Further, while giving thrice daily ten grains of urate of ammonium (during an enquiry as to the place where the organic acid is formed) he found eczema in the man much worse. Again, the illustrious Trousseau tells us: "Eczematous eruptions, rheumatism, gout and hemorrhoids and, I may add gravel, are complaints which may be replaced by asthma and may replace it in turn; they are different expressions of one and the same diathesis," and that "gravel of the skin" may be the first evidence of the diathesis. Robin's theory of gout explains some further points in connection. It is that fibrous tissue assimilates albuminoids to form gelatin, which in disassimilation produces uric acid and urates. If from some cause (probably one acting through the vaso-motor nerves) excessive disassimilation occurs, the blood is loaded with these substances and they osmose into the fibrous tissue. The low vascularity of this structure does not allow of ready absorption. There is reason for believing that the high arterial tension in acute gout, and in many diseases influenced by it, is excited by uric acid in the blood. Those who will not believe in the causative influence of a blood poison in the disease have striven to show a frequent neurotic origin. It is even urged that one patch may send irritation to the nerve centre, which will thence be reflected to other parts by the trophic nerves, often symmetrically.

With regard to the supposed connection of the scrofulous diathesis and eczema, it must be allowed strumous children show the eruption sometimes, on the head most frequently. The glands of the neck are enlarged in both cases, but with the difference that they often suppurate in the scrofulous, never in the simply eczematous. The eruption in strumous subjects is apt, however, to assume the pustular form, while in the gouty it is raw or scaly. They equally contrast in the curative effect of drugs, for example, iron in the one, lithia in the other. Iron given to a gouty subject would produce a perfectly insoluble compound with uric acid.

No one supports the assertion of Hebra that cancer is apt to occur in those who have been subject to eczema.

AN ANOMALOUS FORM OF ECZEMA.*

Last January I was consulted about a raw surface involving the right tragus, and the hairless skin in front of it, and at once its likeness to Paget's disease of the mammary areola struck me. It was oval, about 1½ inch vertically and an inch transversely, florid and moist as is the glans penis during balanitis. The patient was a married woman of forty, who had been long troubled with uterine maladies. Referring to my notes, I found records of two very similar cases, unilateral and in females, but of diverse ages—forty-five and twelve. In the latter there was also a small patch a little above the eyebrow of the same side. They had not the symmetry, chronicity, dryness, and other features or erythematous lupus. The uniform, florid, oozing surface without granulations, hard and slightly raised, but without the rolled over edge of Jacobs, or the rodent ulcer, the absence of pain or much itching and stubbornness to treatment, without occasional disappearance, characterised all the cases. Dr. Crocker has observed a like condition on the scrotum.

Some physiological analogies group these regions: in all the sebaceous glands (or as Unna regards them, coil glands) are very large; those round the nipple were, by Bidloo in 1685, described as supplementary mammary glands. The soakage of the skin by the overflow of milk or by the saliva of the infant is prevented by their oily secretion, and in the scrotum and parotid region a similar waterproofing protec-

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* Read in the Section of Pathology at the Annual Meeting of the British Medical Association held at Glasgow, August, 1888.

tion may be afforded against the urine and the sweat falling from the temple respectively. All agree as regions in which the arrival of puberty is manifested. In the female the scanty hair in front of the ear remains of the lanugo kind, and the glands are correspondingly large, and as the arrector muscles are weak, their contents are apt to accumulate. The raw surfaces occasionally noticed round the lips, the nostrils, the eyelids and round the anus are somewhat like, but they are rarely so chronic as Paget's disease, or the condition I note in the parotid region. Professor M'Call Anderson describes an eruption round the mouth of a child who suffered from protracted salivation which had "such a brilliantly red appearance that the saliva running over it looked almost like arterial blood." Blepharitis is very rebellious, owing to the mobility of the lids and the difficulty of excluding air.

All the cases healed, a slightly depressed unpigmented cicatrix remaining. Some forms of eczema undoubtedly leave scars, reaching well into or even beyond the papillary layer. In 1879 the eminent teacher just named saw with me a girl aged four, who had somewhat similar raw eczematous patches on one cheek, and on the flexures of both knees and one elbow and ankle. The oozing was excessive, and did not cease for six years after, when rickets of the spine appeared, due probably to the saline flux. Pale, somewhat concave scars endure.

It may be mentioned that Paget's disease of the mammary areola appears to be rare out of England—so say Scotch and American observers; and except a case which I observed in St. Vincent's Hospital, I can find no record of an instance in Dublin. My patient was an Englishwoman. It may be that there is a peculiar microbe which has not been freely imported, nor has found a fit soil there. The curative effect of that greatest of parasiticides, mercury, in the facial cases here noted, supports that probability, as also does the apparent usefulness of exclusion of air. All forms of eczema on the face are obstinate, because of the almost unavoidable access of light and air.

The earlier cases I treated by an ointment containing

carbolic acid, mercurial ointment and vaseline; in the latest, that most valuable natural agent, lanolin, was employed as the vehicle. The glands being diseased no sebum was secreted, and lanolin was the fittest substitute. In all, the surface being so limited, exclusion of air was attained by Seabury and Johnson's rubber plaster carefully adjusted. Solution of gutta percha in chloroform, used forty years ago by Graves, and now called traumaticin, would afford a good covering for this and many other cutaneous affections.

(I.) ICTHYOSIS DEVELOPED AFTER MIDDLE AGE. (II.) ICTHYOSIS AND EXTENSIVE LUPOID ULCERS CO-EXISTENT.

I. Ichthyosis (*ἰχθὺα*—a fish scale) is not a very good name, for in the rough masses on the surface in the disease there is but little likeness to the overlapping scales of fishes. The affection is very rarely congenital in the usual sense, for a child will have a healthy skin for many months, when some developmental impress will come into force, and produce a hideous deformity. The latest time of appearance in Mr. George Gaskoin's remarkable series of a hundred cases was fourteen years.

Dr. Adrien, of Oldtown, sent into my wards the following unprecedented case of that disease, which was exemplary in all particulars, save sex, for males are twenty times as subject to the malady as females, and time of occurrence :—

Thomasina F., aged forty-two, the mother of seven healthy children, then aged from twenty to two and a-half years, found while pregnant in August, 1870, that her legs

were swollen. An eruption which, from her description, appears to have been eczematous followed, and remained till her confinement in the following November. She then became quite healthy, and suckled her child for eight months. About June, 1871, the ichthyotic condition of the skin began to show itself, and it has increased up to the present date (June, 1873). The cuticle on the back of the forearms and front of the thighs and legs was of precisely the colour of the upper surface of the turbot, and losing its continuity was divided into polygonal, mostly quadrilateral masses, varying in width from three lines to half a line. This cuticular mass was often rolled up at the corners, and could be picked off in plates of about two lines in thickness, leaving the underlying skin rough, papillated, red, and sometimes apt to bleed. When the wrist was extended the skin rose into great transverse wrinkles, and by taking one of these between the finger and thumb it could be found that the true skin was greatly thickened. These conditions were equally marked about the knees and ankles. On the front of the abdomen and chest and on the entire dorsal surface of the body the skin presented the characters of xeroderma, or dry skin, a few minute red cracks being apparent at points of flexure. On many parts of the body the hair follicles were very prominent; on the scalp the hair was thinned, and it and the forehead were covered with thin yellowish scales of dried sebaceous matter. On the cheeks, especially the right one, there were crusts of sebaceous secretion, and the lower eyelids were slightly œdematous. These last conditions the patient attributed to frequent washing and rubbing.

The only places where the skin was quite healthy were the axillæ, lower half of the breasts, the groins, the inner surface of the thighs, where the lines of normal and abnormal skin were sharply marked, and the palms and soles. Perspiration occurred in these places to an excessive amount, but elsewhere the skin remained perfectly dry. Other secretions were decreased, the urine averaging only twenty ounces daily, contrary to what one would

expect, considering the interference with the sweat glands, and to what has been recorded. The bowels did not move oftener than once in five days. She menstruated normally till August last, when severe menorrhagia occurred, and the function then ceased. Warm weather distressed her more than cold; the reverse has been noted of other subjects. As is usual in these cases, she was very thin. The only thing she complained of was panting and palpitation on taking exercise. The pulse was very full, and 84 per minute; the first cardiac sound very loud, and the precordial dulness abnormally extensive. The checking of secretion and irregularity of circulation in the cutaneous vessels must lead to hypertrophy of the heart in cases of extensive ichthyosis, and Dr. Church, Physician to St. Bartholomew's Hospital, has recorded the case of an undergrown girl of fifteen, whose heart, after her sudden death, was found to weigh fifteen and a-half ounces.

Authors distinguish two essential varieties of ichthyosis —the sebaceous, which is more correctly an extreme degree of seborrhœa, and the papillary, in which the cuticle, the pigmentary layer, the papillæ, and the corium are all hypertrophied. You will have observed that I do not attach importance to rigid classifications of skin diseases, being more interested in their etiology and treatment; but it must be remarked that ichthyosis has no claims to belong to the *squamæ*. It is essentially an hypertrophy of the cutis and cuticle, and in the case now detailed the sebaceous glands would seem to have increased in the scalp and face, places in which they greatly abound, and elsewhere the papillæ and super-imposed cuticle to have enlarged, consequent on greater afflux of blood and greater action of the nutrient nerves. The anatomical characters of papillary ichthyosis, it would appear from microscopical investigations, are not very different from those of what are vulgarly called "seedy warts." The area of diseased action is, however, always more extensive, in fact, it is like a universal wart. The warty ulcer of Marjolin is not very dissimilar,

but its cancroid nature must be remembered. Scales of cuticle are retained and heaped in layers over the extremities of the papillæ, which are separated by deep vertical fissures, the darkness of tint varying with the dirtiness of the atmosphere and the amount of exposure of the skin to it. It has been found that the cuticle contains five or six times the amount of inorganic matter, notably silica, as the normal structure does.

The causes of the affection are as obscure as when it was first described by Paracelsus. It has been stated to be endemic in East Indian and Pacific Islands; but although a constitutional character may belong to the disease no proof can be as yet adduced. Hereditary influence is very evident in those places of insular position. Various fishes in diet, the salmon out of season especially, have been accused as causative of this, and of leprosy and elephantiasis respectively in ancient Ireland and India. This patient had been a robust, cleanly woman living at the seaside; her family, of all grades, was remarkably healthy, except one sister, from whom a cancerous breast was removed in St. Vincent's Hospital fifteen years ago, and it may be remarked that she remained in perfect health up to the time her sister came with her skin trouble.

Ichthyosis is usually described as either congenital, or developed shortly after birth. This woman describes her skin as being, till she was forty, as soft and as fair as she could without vanity admit. Neither does the disease seem in her case hereditarily transmissible. As it has been stated that vaccination does not succeed in the ichthyotic, it may be mentioned that all her seven children took the cow-pock infection very well. The disease is said to be hereditary only in male or female lines. That maternal mental impressions, varieties of animal food, alcohol, and other pathological agenda exclusively human, produce ichthyosis, would seem to be disproved by its occurrence in a calf, from which Rindfleisch obtained his well known microscopic sections. In very extreme cases it has been said that in the movements of the limbs the projecting masses of scales

rub against each other, with a rattle like the terrible sound of the crotalus horridus.

The differences between the sebaceous and the papillary varieties are well shown by the results of treatment—soaking with alkaline poultices, and washing with soft soap will cleanse off the cakes of the former, but as to curing established cases of the latter in which the papillæ, pigmentary layer, and cuticle are hypertrophied, one might as well hope to scrub a black man white. It is likely that salicylic acid would be found very useful in dissolving the horny cuticle, and pilocarpine, by exciting the exhalation of sweat, has been found to soften this covering. Treatment in infants and where the diseased area is very limited should yield good results.

The woman whose case has been referred to has, however, obtained some relief from daily tepid baths containing six ounces of washing soda, and inunction with equal parts of glycerin and cod-liver oil. This oil (first advised in such cases by Dr. Banks), is very penetrating and emollient, and for some such reason was used by saddlers with their leather long before its introduction as a medicine. If perseveringly used in cases of xeroderma, both internally and externally as a liniment, the inner clothing being soaked with it, great suppleness does certainly, and complete cure would probably, ensue. The dry rough condition of the outside of the arms which so often frets young ladies, is said to be curable by the use of Unna's and other superfatted soaps and naphthol ointment. Glycerine alone, or with water (with which, unlike most other fat compounds, it is miscible), I used in the case of xeroderma in the boy lately in St. Anne's ward. Lanolin would be probably better. Glycerine of starch is also useful. To make the intestinal and renal surfaces act vicariously for the dry skin, is the only indication for internal treatment, and the tartrate of soda and potash, or the natural purging waters, Friedrichshall especially, are the most suitable. The disease has disappeared after smallpox, and in the famous case of Edward Lambert it twice temporarily vanished after salivation.

The faithful photographs by Mr. Lesage, which were published in the *Dublin Medical Journal* for June 1873, exhibited most of the features I have detailed. As they are untouched photographs they must show "the truth, the whole truth, and nothing but the truth," which cannot be said of many representations of skin diseases which have been issued. While the patient was in St. Vincent's Hospital she was seen by many members of the profession. Dr. Davys of Swords informs me she died of acute bronchitis in 1878, and that for many years previously she had kept the skin trouble in check by the inunction of cod-liver oil and glycerin.

The chapter upon ichthyosis, in Hebra's third volume, as is usual in all his writings, is most copious in respect of history, classification, and anatomy, and most scanty as regards treatment. The case of the famous Irishman, Edward Lambert, who, as well as several of his family, were exhibited all over Europe, is detailed in support of the theory that the disease is hereditary. One of Hebra's statements, as translated, reads to me very like a truism —"It is easily explained why ichthyosis should be hereditary, especially in families where it has been handed down from parents to children in unbroken succession. We need only recall to mind that the children of the Ethiopians, of the Indians, and of the other races of men, resemble their respective parents in so far that they as a rule have a similar colour of the skin, if not immediately after birth, at any rate, at an early period of life."

Guy's Hospital Museum contains several specimens of the skin of newborn infants marked all over by quadrilateral masses, something like those on the tights of a harlequin. They are regarded as cases of hereditary ichthyosis, and therefore essentially differ from the ordinary form. The subjects are usually prematurely born and the skin seems so abnormally tight and insufficient that they can scarcely cry or suck, and life is seldom maintained for more than a few days. The ichthyosis usually takes the form of streaks corresponding, it was supposed, to the course of nerves,

but Mr. Hutchinson has recently pointed out that no large nerves exist in many of the sites, and that they are too deeply seated in others to influence a superficial pathological condition.

It has been shown that some members of a family have produced ichthyosis for five generations, that it is common for several of the offspring produce the rough dry skin, and this is sufficient answer to the question, Should the ichthyotic marry?—which has been propounded.

II. *Having never witnessed or read of the concurrence of lupus and ichthyosis, pathological states so very diverse in local characters, although many of the ichthyotic are strumous, I thought the following case worth recording :—

Mary Farrell, æt. eighteen, was admitted to St. Vincent's Hospital on Dec. 9th, 1876. The ichthyosis was observed soon after birth, on the fronts of the legs and thighs, but soon it extended to other regions. It is of the papillary form, the cuticular masses being dark green, projecting, irregularly quadrilateral, and separated by fissures. They are not in the least like the overlapping scales of either any fish or serpent. Many other parts of the skin—notably that over the extension aspects of the arms—showed the dry, rough state known as xeroderma.

When she was eight years old several cervical glands on the right side suppurated, and sinuous ulcers resulted. Soon after, the skin of the left cheek and submaxillary region, that over the superior angle of the right scapula, the top of the sternum, both supra-clavicular spaces, and the left axilla developed numerous subcutaneous tubercles, which coalesced and broke into lupoid ulceration. The lymphatic glands were not concerned in these events, and indeed, do not exist in some of the anatomical sites just named. She was admitted to an orphanage, and, under anti-strumous and generally hygienic treatment, the ulcers completely healed.

Four years ago she left the institution, and soon after (her

* Read before the Surgical Society of Ireland, March 16, 1877.

habits being uncleanly, her food bad, and her residence unwholesome) the ulcers re-opened to their former extent.

When admitted to hospital the ulcerated surfaces must have measured some sixty square inches. It was the superficial lupus of many writers, the erythematous scrofulide of Hardy in the last or open stage, but without the violet tint which marks the true scrofuloderm. Recent statistics bring out the proportion of lupus patients with tubercular lesions to be at least 65 per cent., and that of the remainder two-thirds had history of the inheritance of that diathesis. The ulcers looked strikingly like the elevated flabby sores left after extensive superficial burns, and they occasionally glazed over as if about to cicatrise. Her spanæmic state was shown by great pallor, œdema of the legs, and extreme muscular weakness. Such positive signs of struma as conjunctival or corneal inflammation, enlarged lymphatic glands, or diseased bone were absent, and there was no evidence of hereditary syphilis. The only places where the skin was healthy, in regard to softness, pliancy, and perspiration, were the upper part of the face, the armpits, groins, palms, and soles. The heart—which in extensive ichthyosis is often hypertrophied—is in this girl below average in force and sounds. The respiratory, digestive, and urinary organs are normal, but menstruation has never appeared.

Two years ago she had scarlatina, and the ichthyotic cuticle exuviated, but soon formed again. In several cases, ichthyosis has disappeared after the acute exanthems, especially small-pox.

The two pathological conditions in this case are strongly in contrast. In ichthyosis the hair follicles and the sebaceous glands which open into them shrivel, owing to over-growth of their cuticular lining; according to Neumann these glands disappear; in superficial or purely cutaneous lupus the sebaceous and the sweat-glands increase in size from cell-production, especially the former, as they are nearer the surface.

Lupus, except the erythematous form, is much more apt

to be local and unilateral than ichthyosis, which usually is as symmetrical as psoriasis.

The occurrence of constitutional maladies on corresponding parts of the body may be fairly explained by similarity in the distribution of their blood vessels and their vaso-motor nerves, and by equi-distance from the heart and lungs—the main circulatory forces. The symmetry of nutritional changes is seen clearly in the growing grey and the falling out of hairs in corresponding points of the scalp and of the beard region.

Every one will anticipate that I have no rapid or complete cure to announce; but the ichthyosis and xeroderma have been much improved by tepid alkaline baths, the cuticular masses having been picked off under water. After the bath, and at other times, inunction with cod-liver oil and glycerin in equal parts was used. I have to confess that a small spot of lupoid ulceration began near the right knee when the ichthyotic mass was removed, but it has since healed.

The ulcers, having been dressed with carbolic acid and oil (1 in 8) during three months, have lessened one-half, and the amount of discharge has decreased with corresponding gain in strength. During many hours daily, she has exercised in the gardens attached to the hospital. The great extent of the sores, and the absence of any serpiginous spreading, forbade caustics, the more so as all the affected surfaces had previously healed under favourable hygienic conditions.

If a good result be not obtained a month hence—the health being brought to the highest possible tone by residence at our Convalescent Home, and by other measures—I purpose to try skin-grafting. The ulcers show a tendency to heal without epidermis in the centre more than at the edges, and are so slightly movable over the subjacent tissues that the edges cannot be brought close together, and cicatrisation can only result from granulations forming fibrous tissue. If other local measures fail, the continuous tepid baths which I have seen in Vienna produce aston-

ishing effects upon extensive weeping eczema, and the atonic ulcers of burns may succeed. It is used also there for recent burns and greatly relieves pain, which has much to do with the fatal result of these accidents in children; the temperature of the water prevents the loss of heat, which is characteristic of the shock to the nervous system. In one case of eczema Hebra kept a patient in a bath for nine months.

After five weeks' residence at the Home at Blackrock, where the most perfect hygienic conditions were maintained, the lupoid ulcers had healed without artificial *vis medicatrix.*

THE INDUCTION OF ELEPHANTIASIS BY POSTURE.*

A lady, now aged eighty, has had, owing to chronic rheumatism, her hips and knees so stiffened in the flexed position, that for the last seven years she has permanently kept the sitting posture. Lying on the back on a bed or on the side in a hammock became unendurable from the tenderness of the vertebral spines and shoulder prominences. The legs being thus constantly dependent gradually developed every condition of elephantiasis. The left now measures 20½ inches, the right 17, just above the ankle fissure, which is the fittest standard point for measurement. The annular ligament does not yield, and only at that sulcus could the bones be felt even on the firmest pressure. They both show the raspberry surface of the enlarged papillæ, and the soddened cuticle, especially

* Read in the Section of Pathology at the Annual Meeting of the British Medical Association held at Dublin, August, 1887.

between the toes, while in some spots a likeness to the epidermis in ichthyosis appears. There are deep fissures in which the sweat and sebum remain and putrify and emit disgusting odours. A few ulcers keeps open, and from them there frequently is lymphorrhœa, and occasionally a discharge of blackish matter. A vermilion tint has occasionally appeared, the nature of which is not evident.

She is quite unable to lift either limb, owing to its weight and the weakness of degenerated muscle. About thrice yearly, but without regular periodicity, shivering, extensive redness over the legs, and hard tender streaks along the lymph vessels towards the saphenic opening have occurred, but the constitutional symptoms, although similar to what is termed in foreign countries "elephantoid fever," never were so severe as in that condition. The engagement of both legs to such an extent has not probably arisen in any other case in the United Kingdom or elsewhere where the malady is sporadic. There has never been any affection of the lymph glands; it may be noted that blockage of these paths in the ham and in the groin should respectively lead to swelling on the outer and the inner sides of the leg —but this limitation has never been observed even temporarily in the course of the disease. Many of the deep lymphatics pass to the iliac glands through the sciatic notch. It may be that the erysipelatous attacks which usually precede would block all sets of glands at the same time. In many regions where the lymphatic system is fully developed the disease has never been observed. My patient had always lived with good hygienic surroundings. She died of exhaustion in April, 1888, the discharge of lymph having become very copious for three month previously. Any *post mortem* examination was not permissible.

As factors in the production of the above case, I would rank: (1) Posture—the lymph had to rise vertically, and the entirely inactive muscles did not compress the vessels which contained it. It therefore exuded and organised hypertrophying every tissue. It is in like places, far

removed from the central circulatory forces, dependent and without active muscles, we meet with other examples of elephantiasis—the scrotum, prepuce, labiæ, pendulous breasts, end of nose, and earlobes. In these places the recurrent inflammations are not usually observed. (2) Hyperfibrinosis in so rheumatic a person would give material for the increase of all the tissues, the connective above all, whilst the lessening of red globules would slow their waste. Of parts whose increase may be readily judged, there are examples in which the femoral artery became enlarged thricefold, and in which the popliteal nerve was six times its usual size, the trophic fibres and the neurilemma being presumably the parts most added to. It may be incidentally stated that stretching of, and excision of an inch of the sciatic have proved remedial. Further, elephantiasis scroti must be looked on as the most astounding of all hypertrophies, for that part has come to overweigh the rest of the body. If unrelieved, the victims perish by fatigue, as did those in Barbadoes (as Hillary expressed it 120 years ago) by "load of leg."

A study of the conditions which lead to the disease in tropical countries seems to me to prove it due to blockage of those subcutaneous lymphatics which are mainly active while muscles are keeping up the erect posture, and that racial, malarial, and climatic influences, except moisture, are not potent. When standing the fasciæ at the popliteal spaces and saphenous openings are not firmly pressed on the superficial venous and lymphatic trunks as they join the deep, and thus there would be wanting that pumping action at these points, which Braune has shown is so potent as a circulatory force. In walking the alternate contraction and relaxation of muscle powerfully urge upwards the venous blood and lymph. Coast fishermen who never go to sea and labourers standing bare legged in water or mud are usual victims, and they are negligent of remedy while improvement is possible. When the etiology of this pest is worked out, preventive measures may be effective—the more so as the affected places are within remarkably narrow limits,

and there are no causes therein sufficient to produce the disease in early life, or in immigrants until after many years' influence. Their posture, liability to skin inflammation from changes of temperature and checked secretions, and spanemic state from lowly nitrogenised food and malaria afford all the conditions favourable to lymph production, stasis and blockage. Elephantiasis is more frequent in Ireland than in England, and factors like those just named exist there in greater degree. Dr. Graves, and Dr. Bellingham of St. Vincent's, recorded many cases (1830-48). Sir W. Wilde believed that the disease common in that country during the middle ages was elephantiasis, not leprosy.

The evidence seems complete that this hypertrophy of every tissue arises from over-supply of lymph, over-produced or stayed in its flow. I assisted Mr. Tobin, of St. Vincent's, in ligaturing the femoral in a case of unilateral elephantiasis, and the incisions let out a large quantity of lymph almost as milky as chyle. The operation had very satisfactory results. In the earlier stages it is reasonable to suppose that excision of diseased glands might be followed by re-establishment of other channels for the lymph and consequent amendment. In a few cases stimulation of tissue change by electricity has been beneficial.

In rare instances the pressure of a tumour or a rigid cicatrix on a main lymphatic has brought about the elephantoid result. It is very interesting to note the clear account given in Dr. Hendy's "Treatise on the Glandular Disease of Barbadoes—proving it to be seated in the lymphatic system," published so far back as 1784. He extols the remedial effects of bandages.

Pathological changes in some other lymph-abounding parts are somewhat analogous — for example, recurrent tonsillitis leaving much enlargement, and macroglossia. Phlegmasia dolens again presents some likeness, differing, however, in its acuteness, non-recurrency, and the entire resorption of the effused lymph. Elephantiasis has occasionally followed the disease just named.

If posture has, as contended, much to do with the production of elephantiasis, elevation, friction and massage directed carefully upwards, and compression with elastic bandages frequently re-applied, should be hopeful measures during the stage of inflammatory œdema, before much hypertrophy of connective tissue has arisen.

Since the above was written, Mr. Hutchinson's last fasciculus of "Illustrations of Clinical Surgery," has been published. That profound pathologist states:—"As favouring the production of elephantoid conditions, it is almost essential that the part affected should be pendulous, or, as in the case of the lower extremity, at a hydrostatic disadvantage in reference to its circulation."

I have recently attended a clergyman, aged sixty-six, whose right leg, from the knee downwards, developed most of the hyperplastic features of elephantiasis. The circumference above the ankle fissure was sixteen inches. Two attacks of erysipelas had occurred within a year, and the hip of the same side having been stiffened by chronic rheumatic arthritis, the recumbent posture was maintained with great difficulty and undue gravitation of the blood and lymph followed.

Having been for many years a colleague of Dr. O'Ferrall who first advocated the elevation of parts for several hours previous to their removal, I became firmly impressed with the belief how complete and rapid was the influence of gravitation upon all the fluids contained in a limb, whether within the vessels or soaking in the tissues.

THE PURPURA OF EPIDEMIC MENINGITIS.

During 1866-7-8 there prevailed in and around Dublin a fearfully fatal disease which I ventured to name "neuro-purpuric fever" in a report drawn up for the Epidemiological Society. The inhabitants were thrown into panic by the name of Black Death having been incautiously applied to it by a leading practitioner. No century before the present has had a like epidemic. Down to the end of the seventeenth century many deaths in the London bills of mortality were noted as "spotted fever and purples." Ireland has been the only country in which the cutaneous extravasation has been frequent in these outbreaks. A brief account of this awful visitation may not be here out of place. It was indeed awful in its want of premonition, great and rapid mortality, and intense bodily pain in some cases.

In the form known as cerebro-spinal meningitis, it first appeared in Geneva, in 1805—in family groups, a point not observed since; then in Medfield, Massachusetts, in 1806; it prevailed during 1838-40 at Versailles, Lyons and Strasburg; in 1846 at Dublin, Bray and Belfast workhouses; at Dantzic, in 1865, and occasionally in the United States from 1806 till 1873. During the latter year it was widely epidemic in Massachusetts. Since then casual groups of cases have arisen in its former localities; but in Philadelphia it has not been absent for over twenty years. The fullest description is to be found in Stillé's article (Pepper's System), and the most exhaustive history in Hirsch's Pathology, so charmingly translated for the Sydenham Society by Dr. C. Creighton.

There were two well-marked groups of symptoms, so that some believed they indicated two separate diseases, but more probably they only differed in that the one was fatal by blood poisoning, while the second had time to cause tissue change, and the two groups were sometimes intermingled.

(1) In the ataxic or toxemic form, the symptoms usually were chilliness or rigor, depression, vomiting, sometimes diarrhœa, sometimes constipation, tongue dry, pulse about 100 and compressible, breathing laboured, skin moist and cool, restlessness extreme. The purple spots and blotches were at different depths in the skin and the areolar tissue, and were therefore varied in tint. Occasionally the cuticle was vesicated with blood fluids. The legs, hands, face and back were their commonest sites. Pressure did not, of course, influence the purpuric spots, in the way of fading, nor did it bring them out as in scorbutic subjects.

After death, fluidity and proneness to putrefy was noted as to the blood, which congested in the pia-mater and the lungs especially. In one case I found blood poured out copiously on the arachnoid membrane of the brain—such probably occurred on the tenth day of the disease, and caused death on the fourteenth. Decomposition after death was surprisingly rapid.

(2) The second, or more strikingly cerebro-spinal form, was denoted by pyrexia, sudden and severe pain in the head and back, hyperæsthesia, retraction of the neck, or even opisthotonos. Delirium, followed by convulsions and coma, appeared early in the fatal cases. During recovery the eye, that exquisitely instructive field of pathology, showed nutritional changes dependent on the affection of the ophthalmic branch of the fifth, such as keratitis and iritis. Recoveries were more numerous in this form, but convalescence was most tardy, debility being extreme. Effusion of lymph or pus on the arachnoid of the brain and cord were found in fatal cases of this second type.

Cases of this kind have arisen sporadically before and since, but usually without the blood spots. In several

epidemics the eruption was facial herpes, a more familiar manifestation of engagement of the nervous system, but in this outbreak it appeared usually during convalescence. In Germany this symptom is looked on as pathognomonic. In some Dublin cases the fluid of the herpetic vesicles was black.

The average age of the patients was eighteen; the extremes, nine months and sixty-five years. The youth of the patients favours both the idea that the sympathetic nervous system, or the blood, or both, are the essential sites, for then that nervous organ is in fullest power, and the blood exceeding in its average of white cells is peculiarly ripe for rapid and extensive zymosis.

The sexes were equally attacked in this outbreak, but in the Dublin workhouse cases in 1846, boys under twelve were almost exclusively the victims. In a German outbreak of 779 deaths, 737 were in persons under fifteen. The average duration of fatal cases from the first symptom was two and a half days, the most rapidly mortal case succumbing in five hours, as recorded by Dr. Gordon, now President of the Royal Academy of Medicine, Ireland.

During the two years of its reign about 200 cases arose, of which one-half died; but the mortality at the outset was 80 per cent., and towards the end was much slighter. The same statistical facts are true of all epidemics.

Causes for this mysterious disease have been earnestly but fruitlessly looked for. Social position and hygienic condition will not account for it, as it has prostrated the noble and the healthiest, the most degraded and the weakest. Residence in town or country or upon any kind of soil seems to make no difference. There could not be found any evidence of contagiousness. Measles was the only zymotic concurrently prevalent, and the epizootic, vulgarly known as "soldier" or "purples" of pigs, was more commonly recorded than usually.

From neuropurpuric fever occurring about the same times and places as were observed in cholera, a similar poison was supposed to produce both, but the evidence on

this point was scanty and imperfect, low level favouring cholera, while the other pursued its fitful course in places of any description. In the rapid occurrence of collapse and stasis of the capillary circulation, there is much similitude between the diseases. However, the great Massachusetts outbreak of 1873 concurred with small-pox, and cerebro-spinal meningitis was panzootic, so to say.

Grief, unwonted exercise, and excitement, as in the case of the French recruits and the soldiers in Tipperary, and want of vegetable food, have appeared to be probable excitants, the latter only so far that it rendered the blood, as in scurvy, easily effused. The outbreaks have been usually in seasons when potatoes, the universal vegetable food in Ireland, have been scarce and bad. In 1846 the poor had none, and then it was that the disease first appeared. Diseased cereal grain has been assigned without reason as a probable cause. The weather was unprecedentedly cold during March and April, the months of the greatest mortality, and similar unusual temperatures occurred during other outbreaks, winter and spring having always been its favourite seasons.

The pathology of the disease is as much disputed as its nomenclature. A sudden and subtle impress seems to choke out life. From the profound collapse of the sympathetic vaso-motor system in some cases, and the intense inflammation of the cerebro-spinal membranes, as evidenced before and after death, in others, either of the nervous systems is an undoubted site. The retention of mental faculties until near the end, and the infrequency of paralytic symptoms lead us to suppose that the cerebro-spinal nervous system was less engaged than the sympathetic. For instance, a boy pulseless and almost moribund, sat up in bed and anxiously inquired, "What are these spots?"

There is no place where sympathetic filaments more abound than under the arachnoid, for the due regulation of the supply of blood to the brain and spinal cord and effusion there might check their function.

We do not know as much of the physiology and pathology

of the sympathetic as of the cerebro-spinal system, but we know that it acts in contracting the muscular tissue in the heart, arteries and capillaries, and we have grounds for supposing that any profound impression on it will cause a palsy of the circulatory forces and an arrest of the blood in the cutaneous capillaries, with diapedesis or osmosis of its parts from them, or of such of its components as form perspiration. It is not yet determined whether diapedesis occurs by the separation of the endothelial cells or by a rent which is at once repaired. Such are the cutaneous phenomena of this disease.

The nervous system being so deeply engaged, and purpuric spots being usually effused, the name I have suggested seems appropriate. "Cerebro-spinal meningitis" did not apply to half the cases, and did not describe the eruption—a most characteristic feature. Every form of purpura is, according to Schwimmer, a trophoneurosis. The osmotic properties of the blood are certainly altered. It will be most interesting to ascertain if any change occurs in the number of the leucocytes and of the blood-plaques or hæmatoblasts, on which the coagulability or fluidity of the blood so much depends. Weir Mitchell believes that the purpura seen in cases of snakebite and yellow fever depends upon those poisons influencing the vessels, as to their nerves or nerve-centre especially. The purpura caused by the iodides must result from some vessel change, as the small amount of the drug could not alter the composition of the entire blood.

Several pathologists regarded this disease as a malignant variety of typhus, but many of the characters of a toxæmia, or a zymotic of any kind were wanting, and the amount of fibrin in the blood was often doubled, while in typhus it is lowered. The apparent non-contagiousness cannot be counted, as when death occurs within two or three days no exanthematous poison could have developed. It certainly seems to have followed the movements of troops in many instances, but in others to have jumped here and there in a way not to be traced. No regular

rise and fall, so characteristic of other epidemics, has ever been observed. Its frequency and its fatality among children were most striking differences. The purpura maligna of Sauvages, which prevailed occasionally during the seventeenth and eighteenth centuries, resembled the disease in many points. Authors in the sixteenth century described "Purpura apyretica," and thus it would appear they were familiar with a feverish form.

Treatment you will not expect to have been very potential, if I have impressed you with the gravity and mysterious nature of the malady. Nothing in the way of remedy was learned from the epidemic save that heat to the surface to derive from the internal organs, alcohol to urge the heart, and soluble foods to rapidly renew the blood, opposed the tendency to death by asthenia. Theoretically, ergot and belladonna, which are vaso-motor stimulants, seem worth trial, if a like calamity should arise, and in America are often used.

Blisters, raised rapidly and superficially by epispastic liquor from the occiput to the dorsal region, were useful in the more sub-acute cases, such as that which occurred in St. Vincent's Hospital at the end of the epidemic, as detailed by me in the *British Medical Journal*, May 30th, 1868. In this case salivation was brought on by mercurial ointment applied over the great blistered surface. She had well recovered from the primary affection on the tenth day, when large clots were effused over the corpus callosum and into both ventricles, as autopsy revealed. If, as is likely, a form of bacillus be proven to be at the root of the disease, rapid mercurialization would be the clearest indication. So highly do I esteem mercury as a plant killer, that I would not hesitate to produce its full effects in ringworm of proven dermatophytic origin. The endurance of a course of it can bear no comparison to the worry of a year's local management of such a case. As stated in the first paper, silver staining gives evidence that metallic salts are, in large share, determined to the skin, and there they must produce their specific physiological actions. The

inoculable disease in which local application of mercury is a never-failing remedy is contagious impetigo. In 1871 I had the opportunity of observing one of the earliest and largest of the quasi-epidemics of that eruption. It affected over one hundred soldiers of a Guards regiment, besides many children. Ammonio-chloride of mercury ointment was indeed a specific.

The following is a summary of the theory of epidemic meningitis with which my Report of 1867 ended. The rapid form is zymotic—no inflammatory lesions would kill in five hours. The letting loose of the blood into the skin, where it decomposes, the weakened arterial force, the embarrassed respiration, and the nutritional changes in the eye may be due to a blood poison, weakening or paralysing the vaso-motor nerves. Contracted pupil, suffused conjunctiva and prominent eyeball are noted of the United States cases. The late Dr. Farr suggested that "this purple fever was only typhus seizing the scorbutic," and in 1846 and 1867 scurvy was very rife owing to want of potatoes. As in epidemic meningitis, the amount of fibrin is often doubled in scorbutics. Dr. Murchison also believed the poison to be typhus. In the rapidly fatal cases there would not have been time for the development of the contagium, but it must be allowed that typhus did not appear in the cases which survived, nor among other inmates of the dwellings in which the unusual epidemic arose.

Petechiæ are far more frequently a feature in the course of typhus in Ireland than elsewhere.

Several cases with close resemblance to those of 1867 were observed in Dublin in the spring of 1886.

THE TREATMENT OF ANGIOMA.

The forms of angioma or tumours composed of vessels are two :—

1. Telangiectasis, or dilatation of the capillary blood-vessels, is a term restricted by the German authors to cases of the kind which are acquired, especially in middle-aged people, by some local cause, such as blows or punctured wounds. The tortuous vessels on the face round acne spots are much of the same nature, and the treatments most successful are electrolysis, or section of the vessels, and the touching of the cut points with dilute solution of perchloride of iron. The tortuous and dilated veins and capillaries on the nose of those who drink spirits largely form also a kind of acquired angioma, which the French term "*couperose alcoolique*." Constant exposure to atmospheric changes, as for instance occurs to cabmen, may bring about a like condition, to which the name of Rosacea is given. Sometimes there is almost elephantoid hypertrophy.

2. Nævus is a term indicating a congenital origin, which is applied to vascular tumours in which capillaries, veins, and arteries are all superabundant and over free in communication. Sir R. Carswell was the first who stated he had in such cases found the larger and deep-seated arteries dilated and tortuous from the same want of tone which gives rise to the tumours on the surface. The blood flows slowly through them, owing to the dilated state of the vessels. They are sometimes described under three separate heads accordingly, as the capillaries, veins, or arteries exceed, pulsation often marking the last kind and the colour varying accordingly as arterial or venous blood preponderates. The coats of the arteries are as thin as those of veins. Aneurism by

anastomosis, or spongy aneurisms, were very appropriate terms used by the older writers. The buzzing sensation in these on the head sometimes troubles the subjects when they grow older.

As Virchow pointed out, they are frequent over the fissures between the facial bones, where vessels are abundant in the fœtus. Small capillary nævi often fade away within the first or second month, and larger ones sometimes spontaneously slough away.

Their colour, softness, greater fulness—not erection as commonly described—on crying, paleness under pressure, and their having appeared usually but not invariably at birth, will make diagnosis certain. In very young infants, indeed, it may be sometimes doubtful whether they are ecchymoses, the result of pressure during parturition, or malignant deposits—fungus hæmatodes. Each of these three opinions was lately given to the parents of an infant, respectively, by three consultants, myself being one of them. That the little tumours were not malignant appeared from the fact that several months after the child was living and in good health, the tumours lessening. Their sites, complications (such as bleeding, sloughing, formation of thrombi and phleboliths, bursting under mental excitement), and on the other hand their spontaneous cure by coagulation and subsequent absorption, are well-known.

The preparation in the Hunterian Museum, which is depicted in Sir J. Paget's "Pathology," shows their cavernous structure, which simulates erectile tissue, having no capillaries between the arteries and veins. It is interesting to note that they are sometimes limited to the area of distribution of a single nerve—the supra-orbital, for instance. They are rarely multiple.

These cavernous formations are not always congenital. Amongst others developed in adult age, I published (*Proceedings of the Surgical Society, Ireland*, 1864) an account of one as large as a hazel nut which was near the urinary meatus. Some of its features it may be well to summarise, as it and the case shown at the same meeting, by the late

Mr. Richardson, appear to be the only ones on record. It began when the man was twenty-six, and slowly increased for nine years to the date of observation. He stated it enlarged when erection in the organ occurred, and thus it differed from nævi, which only get turgid owing to the delayed circulation during forced expiration. As it gave little trouble he would allow no remedial step. The second case was congenital, and the tumour, when the boy was three, was larger than the glans penis from the anterior and inferior portions of which it projected. Drawings of both tumours are preserved in the museum of the Royal College of Surgeons, Ireland.

During severe illnesses nævi have been known to cure spontaneously, and occasionally they slough away without any apparent cause. Injection into them of tannic acid, dissolved in glycerine and water, was the plan usually followed in St. Vincent's Hospital. It was fairly successful, clotting of the blood, as shown by the hardening of portions or of the whole of the tumour, rapidly resulting. In about one-sixth of the cases sloughing took place, and in most situations the contraction afterwards did no great harm. If the nævi were on the scalp the injection plan might cause phlebitis of the cranial sinuses, as they communicate so freely with the external vessels, and injection of perchloride of iron when they were on the neck has proved fatal by embolism. It has also caused sloughing of the tumour or of skin some distance from it.

The solid mass caused by the clotting of the blood absorbs slowly in even the most promising cases. Professor Wood, of King's College, has most successfully injected carbolic acid. With a double intent vaccination has been performed in nævi, but with poor success, as far as records show—perhaps depending on the blood washing away the vaccine lymph. However, if the skin be very superficially scratched this will not occur. It is interesting to find that the progress of the vaccine vesicles does not differ from that which is observed on the sound skin. In these days, when vaccination happily is a legal obligation, it is during the

first three months of a baby's life the valuable protective is applied, and the surgeon is often not previously consulted about the nævus. Vaccination often cures the small stellate spots, which may be dilated vessels belonging to a single hair follicle or sweat gland. In larger nævi it should be performed at five or six points in a circle round the edge, so that the inflammatory action may partly strangle the tumour and thus lead to its absorption. Tartar emetic, one part to five of adhesive plaster, brings out a pustular eruption, and Neumann, who adopts this plan, says a thin soft scar follows.

In 1852 the late Mr. Startin used a form of elastic subcutaneous strangulation—a strong thread was put under the skin around the nævus, and its two ends were joined by a band of india-rubber. The vascular tissue broke up in twenty-four hours, and little deformity ensued. In a very large nævus involving three-fourths of the lower lip, in the treatment of which I had the aid of the late Mr. John Hamilton and of Mr. Wheeler, of Dublin, the mass was strangled by needles thrust below it, and silk twisted round. Quickly the nævus got hard, and even a part not ligatured consolidated and then sloughed, for this morbid structure has much less tenacity of life than healthy tissue. The skin for a small distance down from the red border of the lip also sloughed, but we pared and united it and the case turned out satisfactorily. There is always, however, great uncertainty as to the amount of tissue which will perish. Setons steeped in perchloride of iron may be passed through the tumour, and they clot the blood and lead to the absorption of the tumours very safely.

Mr. Teale asserts that there is a distinct areolar capsule round nævi, but surely the numerous vessels going in and out must break its continuity, and it is better marked in the cavernous form of angioma. He has, however, succeeded in turning the tumour out of this capsule in many instances. A ligature somewhat elastic should be placed round the base of the swelling, previously drawn out and squeezed by the fingers to empty it as much as possible and lessen

bleeding during the dissection. The danger from bleeding is, however, not so great as generally supposed, unless the nævus be distinctly arterial, as may be known by pulsation, florid colour, and heat. The old rule of John Bell to cut them out but not cut into them, is a sound one. A bit of Licoperdon (puff ball) pressed down on the wound acts wonderfully as an hæmostatic if any of the smaller ones get incised.

Behrend, of Berlin, has advised the application of the strongest acetic acid, followed by compresses soaked in vinegar. He states that the blood in the vessels coagulates, and that the nævus dries and exfoliates like a piece of parchment. I tried carbolic acid in the same way in one case with fair success, and it is a most painless caustic. This case was noteworthy in the fact that the first cousin of the child had a nævus precisely alike in site under the right eye, in size, in shape, and in tint. I used tannic acid injection in this instance successfully.

In the treatment of nævi very various remedies are suitable for various cases, but electrolysis is becoming every day more and more the favourite. In small nævi it merely coagulates the blood in the enlarged capillaries. A plate of metal as the positive pole is fixed on the skin about a foot distant, and a cambric needle, the negative pole, is thrust into the stain for three or four seconds. Little bubbles of gas appear and the nævus gets pale. The pain is very slight, and sloughing or any other untoward result unusual. The process has to be repeated according to the extent affected. When the nævus is large two needles are usually thrust in, all but the last quarter-inch being insulated by copal varnish. The deeper part should be dealt with first. When hardening occurs the needles are changed to opposite poles, as the iron salt formed round the positive ones checks the bleeding on drawing them out. Before being taken out they should be rolled round. The iron salt may leave a stain. Some operators prefer to insert the positive needle, which acts more slowly, hardening only and never sloughing resulting. Any of the various

forms of the Leclanché battery is suitable, from five to ten cells being required according to the depth of the structure.

The current from a Bunsen battery may be passed through fine silver wires inserted horizontally in the nævus. When they are heated the connection is broken, and the ends are loosely tied so that the current may be used through them several times without fresh punctures.

True angioma confines itself to the vessels of a single structure, no matter how closely they may conjoin those of another; for example, in a case of osteo-aneurism which I recorded, the skin, so intimately connected with the bone in the region, was quite unaffected. On the inner surface and near the middle of the tibia of a healthy man, aged twenty-eight, it formed a swelling as large as a walnut. To the fingers it gave a distinct thrill and systolic pulsation, expanding in all directions, and with the stethoscope a *bruit*. Pressure on the femoral or popliteal artery did not check these symptoms. The swelling had been occasionally painful and tender. His personal and family histories were excellent. The disease had followed a blow received on the spot five years before, but rapid progress had been made for the month preceding my observation.

After consultation with Dr. Hutton the following steps were followed: the cuticle having been raised by a blister, the skin and periosteum were removed with potassa fusa, and a shell of bone, partly cribriform and partly in fragments, was displayed. The distensile pulsation was quite manifest now. An iron button cautery, the diameter of a shilling, heated to whiteness, was pressed deeply into the tumour, and the free bleeding which followed was stopped by a compress wet with iron perchloride tincture. In seven days a slough in which there were small gritty pieces came away, and a further pulsating surface being revealed, a conical cautery iron was thrust very freely in, but not to the depth of the medullary cavity, as far as could be ascertained. The resulting slough separated in ten days, leaving a healthily granulating cavity, which filled in gradually. When last seen—sixteen years afterwards—there was a pale slightly

depressed cicatrix with healthy bone under and all around it. During the present year he was reported to be well.

Result, then, may be stoutly set against the supposition of its having been malignant disease, which, moreover, finds its field in the epiphyses and medullary canal most frequently. At first many eminent surgeons, including Mr. Holmes, expressed incredulity as to the non-malignancy of the tumour. In 1883 that gentleman (*System of Surgery*) frankly says: "Admitting, therefore, the possibility that in such a case as Dr. Mapother's the tumour might be found to consist only of vascular tissue, we must also admit the course he pursued was justifiable." An osteo-aneurism forms by the deposit of lime salts being lessened or their removal increased from some unknown cause. The vessels can then irregularly dilate and intercommunicate, and the tumour may spread by the pulsation of the vessels and by the solvent power of the alkaline phosphates in the blood, which does not so rapidly circulate as when the calibre of the vessels is normal. It may be that the periosteal vessels first show pathological change. A fuller account of this case may be found in the Proceedings of the Surgical Society of Ireland, *Medical Press*, 1863-4.

The following cases are somewhat analogous:—(1) Dr. R. McDonnell and Professor Erichsen, for five years up to 1887, had under observation a lady for a pulsating tumour of the shaft of the fibula. Pressure on the femoral stopped pulsation and *bruit*, which latter was loud and shrill. Childbirth and subsequent phlegmasia having compelled her to keep in bed for many months, the pulsation, and finally the tumour, were gone. In the beginning amputation had been most reasonably proposed, and the diagnosis of osteo-aneurism and sarcoma is therefore of prime importance. (Royal Academy of Medicine in Ireland, 1888.)

(2) A lad, aged about thirteen, had a tumour engaging the lower part of the tibia arising after injury eighteen months before. It was slightly compressible, with a spongy and occasionally crackling feel. All the leading surgeons of the day saw the case, and great variety of opinions were

given. On making an exploratory incision torrents of blood flowed, which the tourniquet could hardly diminish. The limb was removed above the knee. The tumour was a cavernous mass, and the Reference Committee reported it as "an admirable example of aneurism commencing in the lower extremity of the tibia." Many years afterwards the patient was well. (Bickersteth, Pathological Transactions, 1868.)

That a like morbid condition to that of angioma may come upon lymphatic vessels appeared first from the following, case, very briefly summarised from the essay of Kaposi in Hebra's *Skin Diseases*, who regarded it as unique :—

The patient was an unmarried female, aged thirty-two, quite healthy otherwise. Embedded in the cutis all over the body there were hundreds of brownish tumours, projecting superficially to the size of lentils, and to an equal degree into the areolar tissue under the skin. They had existed from childhood, but had latterly increased. One tumour was excised, and upon microscopic examination was found to consist of great intercommunicating lymphatics, the blood-vessels being of normal size. Many similar cases have been since noted, and the fullest information on the subject is to be found in a monograph of Dr. Busey, of Washington. They were formerly regarded as nævi which had undergone blockage and cystic degeneration.

PLASTIC OPERATIONS FOR THE MOUTH AND NOSE.

Contractions of the mouth resulting from cicatrisation after lupus, burns and some other causes demand occasionally prompt interference, especially if the other respiratory aperture be also narrowed.

Stomato-plasty.*—In October, 1879, a countryman, aged thirty, otherwise healthy, came to St. Vincent's Hospital for contraction of the oral and nasal openings, the result of lupus, which had cicatrised two years before with horrible deformity. The left nasal opening was wholly closed with a thick scar, and in the right there was a passage through which he daily forced a piece of wood the size of a No. 2 catheter. He refused all interference with the nostrils, as he said that by the use of caustics the contractions had been made worse. The oral aperture was a nearly perfect circle of six lines in diameter, with healthy lip-tissue at the upper and lower parts, but with hard cicatricial structure at and near the commissures. It was scarcely dilatable, and examination of the mucous surface with the point of the little finger caused much difficulty of breathing. Speech was very imperfect, and he had been restricted to fluid diet for many months.

As he begged for the least severe operation, a plan was followed which I had found useful in dealing with cicatricial webs after burns about the elbow and neck. In each cheek, six lines from the strictured mouth, a perforation was made with a platinum rod, two lines in diameter, heated to whiteness by the benzole apparatus. The buccal cavity was protected by a wooden spatula. Other sur-

* Proceedings of the Surgical Society of Ireland, Feb., 1880.

geons have made such holes with Chassaignac's trocar, and kept them open with a drainage tube acting like a seton, but some more rapid steps seemed called for in this case. In five days the sloughs came out, leaving holes apparently too large. They, however, quickly contracted to a size less than the platinum rod, and in a month they were healed, with smooth flexible tissue, which seemed as likely to be permanent as the perforation in a lady's ear lobe. Then the intervening pieces were removed by horizontal incisions from the upper and lower edges of the holes to the mouth. On the left side the cheek was found very thick, and therefore I followed the plan of Serre, of Montpelier, and took out a wedge-shaped bit of each cut surface from between the skin and mucous membrane, which were then sutured. In four days the surface of the right artificial aperture ulcerated, and contraction gradually ensued until the plan on that side was a failure.

The patient and I were fairly content with the left operation, which widened the mouth by some three lines, but on the right, three weeks later, I performed Dieffenbach's stomato-plasty. It appears that Werneck adopted this procedure in 1817—thirteen years before the great master just named.

Anæsthesia was not attempted on this or the former occasion, as the breath inlet was so narrow that any restorative efforts which might have become necessary would have been much impeded. His face would often get blue during manual examination. The left fore-finger being passed behind the mucous surface, cutaneous incisions were carried from a point ten lines external to the new commissure to the upper and lower edges of the mouth. They went only to the depth of the sub-mucous tissue, and to this level the triangular piece was dissected off. The labial portion of the orbicular muscle was cut away, for its sphincter action seemed to promote the persisting contraction. The superior coronary artery having been divided was twisted. The mucous membrane, made tense by lowering the jaw, was cut horizontally to within

two lines of the angle, with a scissors, and the flaps were stitched to the edges of the skin. But for the difficulty of breathing, due to the nasal closure, I would have followed Velpeau's plan of inserting the sutures before dividing the mucous membrane. Towards the new commissure the flaps were very narrow, but to get them wider would have required incisions beyond the level of the healthy lips. The mouth was kept closed, and the lower jaw was bound up with a roller. All was fairly healing by the fourth day, when the sutures were removed, and a mouth stretcher, or tubular obturator, similar to that figured in Garretson's *Oral Surgery*, but made of gutta-percha, was put in to distend and duly shape the oral aperture. The gutter all round kept it fixed, and the opening in it was much larger than the mouth before operation. He wore it very perseveringly while he remained in hospital, only removing it when feeding.

On Christmas eve, when he insisted on going home—some eighty miles—the mouth measured transversely sixteen lines, and when opened to the utmost fourteen lines from above downwards. Its greater extent to the right side was not very unsightly, and the inequality will probably lessen. The newly-formed lips had a fairly red colour where they had been derived from the mucous membrane. During treatment the surface of the scar got abraded in several points, yet no lupoid ulceration recommenced, because the sebaceous glands, in which that process has its site, had been all destroyed by the disease or removed during the operative steps. In similar cases of oral stenosis the introduction of silver wire retractors, pulled by an elastic band from behind, would be useful after operation. Every mode of dilatation without dissection has signally failed; but it is possible that two simple horizontal incisions might suffice if the stretcher were assiduously worn for some months. A year after the operation Dr. Lyster, who sent me the case, reported that no subsequent contraction had occurred, although he soon dispensed with the mouth-stretcher.

The same communication narrated a case which is scarcely dermatological, but as the exciting cause which produced it is a frequent source of abscess in the cheek and consequent depressed and deforming scars, a brief account of it may not be out of place.

A lady, aged twenty-four, married, consulted me for closure of the jaws, which had been increasing for eighteen months from March, 1878. Then there had been toothache of the second and third left inferior molars, but no abscess or other inflammatory condition. When she now presented herself the central incisors could be only separated for two lines, and any attempt to force the jaws apart caused severe stretching pain. Speech was very imperfect, and for months she had been fed with fluids sucked from the point of a teaspoon. She was therefore underfed and weakly. The left masseter felt through the skin was very hard, and its anterior border, examined through the mucous membrane, was extremely rigid. The right muscle was softer, but also in tonic spasm.

As antispasmodics had been fully tried by two leading physicians, and as further closure, to the total exclusion of food, was dreaded, I urged examination during anæsthesia, and the aid of the eminent dentist Mr. Baker, F.R.C.S., was procured. When etherisation was complete the jaws could be fully separated, and the dilators we had ready were not needed. They were a boxwood cone with a spiral groove, just like the Rostellaria shell, and the steel two-bladed one. Mr. Baker extracted the wisdom tooth, which was impacted in the root of the coronoid process, and also the second molar, which it had displaced and diseased. For a few days there was soreness in moving the jaws. A week after she could fully enjoy a yawn, and having been enabled to chew solids, her health greatly and rapidly improved, and no return of the spasm occurred. That the affection was purely spasmodic appears from the complete relaxation under anæsthesia and the result after the irritating tooth had been removed.

The Americans term this disease *trismus dentium*, and

the words *sapientiæ inferiorum* may with exactness be added, for it is these teeth alone which excite it. The upper wisdom teeth can make room towards the tuber or antrum, but the coronoid process of the lower jaw is less yielding when eruption is hindered by crowding of the teeth owing to want of growth backwards of the ramus. At the age of six years the sacs of the lower wisdom teeth appear, and at twelve calcify in the middle of the coronoid process. It is quite common for these teeth to remain half erupted, and covered by a flap of gum, which causes much pain in mastication, and leads to approximal caries, as noted in John Hunter's great work on the teeth (1778), which constitutes him the father of dental pathology. Malposition of these teeth has produced buccal, pharyngeal and sub-fascial abscesses so severe as to threaten life, and reflex nerve symptoms such as aphonia and amaurosis. Their fangs lie so close to the inferior dental nerve that it has been torn during their extraction. The great size of this nerve, and its close connection with the twigs to the masticatory muscles, explain the powerful and enduring spasm of them, especially as their antagonists, the muscles which open the mouth, are weak and indirect in action.

Allusion may be made to other causes of trismus. Metal stoppings, especially those of both the positive and negative conditions, have excited electrical trismus of the masseter. Dr. G. Johnson relates that a grain of flint lodged for fourteen days in a scar in the cheek caused trismus, and, what seems inexplicable, palsy of the seventh nerve. The buccal, mainly a sensitive nerve, forms a plexus with the facial; epilepsy in this case had recurred after a lapse of twelve years, but removal of the irritant cured all. Mr. Barwell found unilateral closure of the jaws from a temporal wound, and with the peculiarity of relaxation during sleep.

The literature of trismus nascentium is so familiar that it need only be remarked that tetanus, spasm of other muscles, supervenes if the infant lives long enough, and that some of its assigned causes could act through the cutaneous branches of the superior and the inferior maxillary divisions

of the fifth nerve. Cold to the face, the only exposed part of the infants, chills after very hot baths—causes said to have respectively produced the great Iceland and Vienna epidemics—might be thus regarded. The foul air pent up in the Rotunda Lying-in Hospital one hundred years ago, and the effluvia from the filthy surroundings of Negro babies, would act by reflex on the pneumogastric nerve, and pressure of the occipital bone during parturition upon the respiratory nerve-centre, as urged by Marion Sims, would lead to spasm of the muscles of the mouth, pharynx, and chest.

The treatment in this case of closure of the mouth was simple and effectual, yet by some dental practitioners gradual separation by means of a wedge, or of Cattlin's rack and pinion separator, is preferred; and the masseter has been subcutaneously divided in one instance, the closure having been so extreme that the patient had to put the lips into fluid food and suck up like a pig. In another case the digastric, a weak antagonist to the elevator muscles, has been excited by galvanic needles stuck into it.

RHINOPLASTY is a reparative procedure of great and increasing interest, and one depending for success on attention to the minutest details. It appears to me that I could best explain the steps of the operation and its difficulties and risks in recording somewhat minutely the instance in which I first performed it. Having been a traumatic case, the chances of success were well in its favour.

On the night of December 15th, 1869, several men entered the dwelling of a country gentleman to seize firearms and take revenge for some alleged domestic wrong. When leaving, two of them presented revolvers at his head, while a third miscreant, catching his nose, cut it and a portion of the upper lip off with some sharp weapon. Dr. Walshe, F.R.C.S., of Clara, found him two hours afterwards very faint from bleeding, which had been excessive. This able practitioner put two sutures in the lip and dressed the wounds with carbolated oil, hoping that a plastic operation

might be speedily performed. The patient was, however unable to reach Dublin till the 18th, when I advised that the sloughy and suppurating state of the wounds forbade operation then. The weapon had exposed half an inch of the nasal bones, removed much of the septal cartilage and all the external cartilages except one-third of the left alar, and sliced off a piece of the lip as far as the red border and through half its tissue. The cut surfaces, especially that of the septal cartilage, granulated very slowly ; and for this reason and because the patient had to appear at the trial of his assailants, the operation was delayed until March 25th. It may be mentioned that two of the ruffians were arrested—one just after the outrage, with great bravery by a neighbouring gentleman—and that they were sentenced to fourteen and seven years' imprisonment respectively.

The relative advantages and disadvantages of the wearing of a false nose and of rhinoplasty having been put before the patient, who was 45 years old, he earnestly declared for the latter. He was told that traumatic cases were more successful than those called for by the ravages of disease.

The operation was precisely that described in the late Mr. John Hamilton's essay ; and its success was in great part due to the unequalled experience of that surgeon, with which I was constantly aided. When the patient was fully chloroformed, the nares were plugged with lint, the edges of the remnant of the nose were pared with a narrow and thin-bladed knife, leaving a raw surface about three lines wide all round, sloping inwards, and an angular notch was made on each side where the ala joins the lip and cheek. As Professor Erichsen has shown, too much cutting towards the cheeks may tend to make them retract afterwards, the nose becoming flattened. There is also his high authority for raising the flap before paring its destined bed, and time is thus certainly gained. A triangular flap, with a pointed piece projecting from the centre of its base, had been marked out with tincture of iodine on the forehead, and it was somewhat larger than the space it was to fill, so as to allow for shrinking. It measured about three inches

vertically and in its greatest width. Models of gutta-percha and such substances were discarded, as they alter dimensions so readily under changes of temperature. Fortunately, the gentleman's forehead was a high one, and free from strong hairs. The flap was vertical, as an oblique one is far more deforming, and one eye-brow may become pulled up. The knife was carried round this marking, and then the flap was peeled very smoothly down, the pericranium being left. Bevelling its edge to correspond with the freshened surface is sometimes desirable. Had the nasal bones suffered, I should have included this bone-forming membrane in the transplant at its lower half (in the upper part it is very adherent), being convinced of the value of that plan where the bones have been removed or even denuded. The risk of necrosis of so vascular a bone as the frontal is nothing. The stalk was one-third of an inch wide and two-thirds long, reaching downwards to the centre of the nasal bones, and on the right side, a little below that, and somewhat further out to include the frontal artery. Some adipose tissue was removed, because of its low plastic capacity, and of course handling and pinching were avoided. There was not the least need for incisions near the temples to relieve tension which have been suggested. Iced-water checked all bleeding in twenty minutes; very hot water would, perhaps, give as good and certainly more rapid results. The minutest clot would, of course, prevent adhesion. Then the flap, twisted from right to left, was fitted over the pared edges, which had glazed. Four silk sutures were put in on each side, those between the angles of the flap and the notches made for them being first inserted. A stout twisted suture was fixed between the eye-brows—for the corrugator muscles strongly pulled the gap asunder, yet no constriction on the pedicle which, from that point, fed the flap, was allowed—and another was put across each of the upper angles. The skin of the forehead being loose, the wound was reduced to an irregularly triangular space, with sides less than an inch long. Just after the flap was arranged, it was very cold; but natural heat was restored

in about three hours by careful regulation of the air of the room and clothing round the head.

On the fourth day the flap being quite vitalised and its adhesion being complete all round, four of the stitches were removed, and on the next the remaining four and the three twisted sutures were taken out. The wound in the forehead healed so slowly that it was two months before it was wholly skinned over; but it was so level that scarcely any deformity resulted. Skin grafting would be of great value in some cases. The central bit having curved back, looked like a very natural septum.

On May 4th—that is, six weeks after the first operation—I proceeded to make a completed columna, the scarred state of the centre of the lip, originally wounded, giving additional reason for such a step. The frænum having been freely divided, an angular piece was cut out of the centre of the lip four lines wide above, a little narrower below, and its point reaching within two lines of the red border. It pretty nearly included the depression known as the filtrum. In persons with shorter upper lips—here there was an extremely long one—the taking of the piece all down by vertical incisions to form the whole columna would be a better plan. The sides of the wound were brought together by two twisted sutures. The point of the piece was cut off, the angle from the forehead-flap freshened, and the equal surfaces thus formed were held together by a single stitch. Union having taken place, the stitch was removed on the third day; but a few hours afterwards, during a very violent fit of sneezing, the two portions of the new columna were torn asunder. However, they remained in close contact, save during a forced inspiration, during a few days, and granulated together within a week, and the mucous surface having gained the appearance of skin, a very good columna had been formed. There was, therefore, a combination of the Indian plan and that of Liston, in taking the columna from the forehead and the lip partially. The right nostril having contracted greatly, an oval piece was cut from around it, and in doing

so the new structure was found very hard, or even cartilaginous. Such contraction might be prevented by tucking in a little of the skin flap towards the nostril. The opening was afterwards kept dilated with an oiled plug of lint rolled hard, which was changed twice daily. Pieces of Jacques' catheters would have been very convenient for the purpose. Throughout there was no reference of sensation to the forehead when the new organ was touched. Such a point has been advanced as a reason for the cheek operation, in preference to the forehead one.

Three months after the nose had an excellent colour, and but for the thick neck at the glabella was very shapely. This pedicle showed the twist, but was healed behind and lay flat on the original bridge. The owner and his friends, thoroughly satisfied with the feature, declined for the present the division of this neck of skin. Rhinoplasty is, indeed, an operation which demands the utmost patience on the part of him who suffers it and of him who performs it. The feature is highly valued and justly so, because as Sir C. Bell said, "it is the organ which chiefly distinguishes the face of man from that of brutes."

This gentleman frequently consulted me for other reasons, but never could be persuaded to have the twisted neck of the flap fitly moulded at the glabella. This step should never be taken earlier than four months, otherwise the nose is apt to sink downwards. Making a bed in the original skin over the spine of the frontal bone prevents such depression of the flap. He has recently died.

The only cases in which a surgeon is justified in recommending this complete Indian operation, are deformities resulting from lupoid or syphilitic ulceration (the health of the patient being for months completely re-established to avoid recurrence of the diseased process), and accidental ablations where great loss of substance has resulted. In that unique disease, rhinoscleroma, of which I saw three cases in Vienna, removal, not to speak of restoration, is out of the question.

I have occasionally restored portions of the alæ and of

the skin covering the nasal bones and the superior cartilages, when they were perforated, but as the steps vary in every case and are such as will readily occur to the mind of the operator, there is no need for detailing them. They more or less resemble the operation practised by Syme and the French school, by flaps from the cheeks, which after being freed are made to glide inwards. If there is need of removing only skin, however hypertrophied, from the nose, the gap should not be filled by dermo-plastic operation, as the perichondrium affords a very good scar by granulation.

To give an idea of the mental trouble acne on the nose gives its subjects, it may be mentioned that several such persons, having heard of the above related case in which I had performed rhinoplasty, begged me to skin their noses, and take new ones from the forehead. Hard, red, and prominently deforming acne spots might possibly be cut out by two incisions, including a very narrow ellipsis; a very fine suture or isinglass plaster would bring the edges in close contact. The patient, however, who would submit to such dissection would be most vain indeed, and over sensitive about a few little papules. Moreover, by electrolysis, the nævoid stains around them may be solidified and they are subsequently absorbed.

In other cases about which I have been consulted, fractures of the nasal bones had united with great depression, and the policy of dealing in any way with the soft parts was most doubtful. Artistically modelled noses fixed to spectacles are not to be despised in such instances. The only operation which would have improved appearances is that of Verneuil, by super-imposed flaps: the forehead gives one turned straight down, and on its raw surface a flap given from each cheek by liberating incisions is embedded and united to its fellow in the median line. Considerable fleshy thickness is thus obtained. Ollier has even stripped periosteum from a limb of the patient and fixed it under a forehead flap to produce a hard bridge.

The Italian operation designed by Taliacozzi was revived,

with some modification, by Sir W. MacCormac in 1877. The case is fully detailed, and the patient, a girl aged sixteen, and the retentive apparatus for the arm are figured in the Clinical Society's *Transactions*, vol. x. It is noteworthy that the great loss of the alæ and lip had resulted from the injection with tincture of iron perchloride of a nævus so far away as the space between the eyebrows, when the patient was an infant. Sir W. Stokes soon afterwards performed this method of rhinoplasty. Any extent of flap may be had, and great thickness also, as if union is to be by granulation, the transplant, of course, shrinks. When there has been great loss of substance, and if patients exhibit tolerance of the needful cramping confinement, it may be resorted to in preference to the forehead operation.

An extraordinarily ingenious intermediate plan has been devised by Dr. Shrady, of New York, and is described in Sir W. MacCormac's important address on "The Value of Plastic Methods and their Place in Surgery," before the Midland Medical Society, last November. By it a flap is raised from the arm, made to grow on the index finger of the opposite hand, and thence transplanted to the face. The position which has to be maintained is far more comfortable than that in keeping the arm applied to the face, as in the Italian procedure. The plan is available for a greater variety of plastic operations.

THE TREATMENT OF THE SYPHILIDES.*

If this were a fit place, or if time allowed, the history of the treatment of syphilis would be an interesting topic; but it will only be mentioned that before Colles' time low diet, severe purging, and bleeding from the arm were considered necessary preliminaries to mercurial treatment. When a student I saw so advanced a practitioner as Dr. Neligan order venesection before he gave mercury for syphilitic erythema or papules. In those days the manifestations of the disease were more severe; since then the poison has been weakened by transmission, or its subjects have hereditarily gained tolerance.

It may be said that the treatment of secondary eruptions by mercury is more fully agreed upon than the treatment of any other class of skin diseases, as appears from the unanimous report of the Venereal Committee of 1868. There are few, if any, who think constitutional symptoms can be with any certainty prevented by the drug, and yet who would not mercurialise a patient with any syphilitic rash if it had not been fully given before, and if the patient were not cachetic in the greatest degree. Bumstead, while denying that any treatment will prevent a true chancre from producing secondary symptoms, states that mercury will always delay their appearance. Diday indeed says, "With roseola—wait; with a vesicular, squamous or pustular syphilide—give mercury; with a papular syphilide—wait, but watch." Most English and Irish writers advocate very much the reverse, for they advise the drug when there is exudation of lymph, condemn it if suppurative or ulcerative tendencies show themselves, and consider it occasion-

* A lecture originally delivered November, 1870.

ally unnecessary in mere erythema. It must be always borne in mind that the state of the patient has to be considered in treatment as well as the disease. Age has really much to do with it; a man of twenty-five will often throw off a poison, syphilis or typhus, for examples, without treatment; a man of twice that age will be crushed by them unless most skilfully treated. All the circumstances which are set down as hygienic, and which have been so much talked of for the last twenty years, influence the progress as well as the treatment of syphilitic rashes, and should be therefore set in operation in all cases.

The physiological effects of mercury have been debated in every country, but at last there is a general agreement with the conclusions of Keyes, of New York, which may be summarised as follows: (1) mercury in large doses lessens the red cells of the blood; (2) syphilis also does so; (3) in small doses mercury increases the red cells in man and animals, acts as a tonic, and increases bodily weight. Many urge that specific treatment should not be commenced till a syphilide appears, otherwise a sore which may not have a true chancre will heal, yet a doubt may remain on the patient's mind for life. Professor Keyes' "tonic treatment" is to find out what dose will produce irritation of the digestive system, or the slightest effect on the mouth by minute quantities gradually increased. When the full dose is ascertained, half of it, or a third, is then continued for two or three years. Proto-iodide is his favourite, or blue pill with sulphate of iron if the former disagrees. During outbreaks the full dose may be reverted to or inunction may be added. Want of perseverance on the part of the patients must often frustrate this plan. The salicylate of mercury in half-grain doses thrice daily has been recently recommended, and Kaposi approves of the tannate. The long-continued mercurial course must be set down as originating with Ricord, who declared six months of mercurial treatment, *plus* three months of treatment with preparations of iodine, to be the method which affords most permanent cures, and succeeds in a vast

majority of cases in really neutralizing the poisonous influence, that is, curing the syphilis or most of its manifestations. A two years' course is advised by others dogmatically, but the continuance of the drug for two months after the disappearance of all symptoms is more reasonable. It must however be recollected that long after the apparent cure of an eruption Neumann had found characteristic exudation cells in the tissues beneath. Nowadays in Germany repeated courses are preferred to one very long-continued one under which the poison would become tolerant of the remedy.

As regards internal medication, the gently affecting of the gums, or salivation is believed by many to be best produced by the proto-iodide of mercury, first given by Biett, and almost exclusively used in France. It should be given in doses of ¼ or ⅓ of a grain thrice daily. The blue pill, 3 grains, with a ¼ grain of opium night and morning—after meals—has been our usual prescription here, and it has no disadvantages whilst carefully used by practitioner and patient. In some individuals indeed, such doses of opium remove appetite. In cachectic cases dried sulphate of iron may be given with it; as both syphilis and mercury in full doses lower the amount of red corpuscles, iron is plainly indicated. It is well that we possess such a variety of mercurials, because peculiarities of patients in various cases render some of them more serviceable than others. Bumstead praised most highly the administration at the same time of the liquid extract of coca in half drachm to drachm doses. It acts as a powerful nerve tonic and stimulant to the nutritive process. Keyes advocates kumiss —milk-beer—almost as warmly.

In the papular syphilide, which is the typical one, mercurialization must be kept up for a much longer time than in erythema, which is merely a local hyperæmia.

I never could understand the advantage, in such cases, of fumigation with vapours of mercury, for the unbroken cuticle forbids their absorption, and there would be no certain means of regulating the dose. Dr. M'Donnell has

shown that the mercurial salt lights on the skin in a crystalline form very unfit for absorption. Mr. Lee is the earnest advocate for calomel fumigation in the present day; but after a careful study of his writings, one fails to see any advantage over inunction, and there seems to be great uncertainty as to the quantity which can be regularly introduced. Mercury rubbed in insinuates itself, either in the metallic state or as the oxide which blue ointment always contains, by the openings of the hair follicles and sweat ducts, but mercurial salts rarely enter by these channels. Forty years ago Dr. Hutton habitually treated ordinary psoriasis by calomel ointment, and although it removed the rash, it never salivated. Ceely has shown that vaccine kept on the unbroken skin will enter into the cuticular openings.

As the poison has entered by the cutaneous lymphatics, and affects them profoundly and continuously, there appears reason for sending curative agents by the same course. Inunction fulfils this condition, and the intestinal surface is much less irritated by this mode than by internal administration.

Again, there is a good deal to be said in favour of the theory that syphilis tends to elimination by the skin, and for this reason, or according to the safer guide, experience, you should advise the hot-air or so-called Turkish bath, and indeed many other forms of bath, natural and artificial. Every hygienic condition should be carefully considered in the management of cases of syphilis, as they tend to eliminate the poison, and to enable the system to bear treatment more or less depressing. Before beginning inunction, a warm bath with plenty of soap should be used, and it may be repeated once weekly. Increase of bodily weight and vigour is to be aimed at, and occurs in well-managed cases. No alteration of habits, if they have been good, is advisable; mental occupation is especially to be commended. Again, the old-fashioned warning as to the proneness to dangerous cold-catching, may be forgotten in the modern system of mercurialization. It did

harm by preventing free open-air exercise, which is a thorough need in this chronic depressing malady.

As Colles' *On the Venereal Disease and on the Use of Mercury*, 1837, is rather a scarce work,* I will quote for you a few passages regarding the mode of using mercury by inunction :—"The patient should be apprised of the necessity of rubbing in each dose of the ointment carefully but not violently, and this he should do in the morning rather than at night, and for these reasons—(1st) the skin is soft in the morning and will bear friction better, and (2nd) the sleep will not be postponed or disturbed. . . . The patient should be directed to divide the whole quantity (half a drachm) to be used into four parts, and then rub in each portion perfectly and successively until all are consumed. It is better to apply it to one limb only on each day, as thus that pustular eruption, which is a common consequence of mercurial friction, is less likely to be excited." The patient himself is to be the rubber, the thighs (which present the most favourable absorbent surface) are not to be shaven, and he "should wear the same drawers both by day and night. . . . When the same part of the body has been rubbed two or three times, it is advisable to wash off the remains of the ointment with warm water and soap, and this ablution should be made the night before the next friction." In those days there were special lodging houses for venereal patients, the inunction being done by professional rubbers, who were occasionally affected by the peculiar kind of stammering which has been called "psellismus mercurialis." This symptom was retained for thirty years in the case of Dixon, the anatomy porter of the College of Surgeons, who at one time rubbed in immense quantities of mercury for the cure of the "mohawks" or swells of that day. Professor Macnamara tells me that his chief difficulty lay in the pronouncing of long words, such, for instance, as that gentleman's polysyllabic name. Vaseline is a good basis, as it can be readily washed off, and lanolin

* It was re-issued in 1881, under the able editorship of Dr. R. M'Donnell, by the Sydenham Society.

would be probably better, as it insinuates itself into the hair follicles most readily. The plaster mull advocated by Unna is a good adjuvant in the use of mercurial ointment with patients who have to travel much. Sturgis first advised inunction to the soles of the feet alternately each night, the stockings being kept on, and many surgeons describe it as much less disagreeable than the application to other parts of the body.

Colles insisted on the need of producing gentle and prolonged salivation, and the weight of opinion at the present day is certainly towards exciting the first stage of the specific action of mercury on the mouth in all cases of constitutional syphilis. Another important point inculcated by him, was that the drug need not be held back while any eruption is developing—he seemed to look on the poison as a foe to be met at any stage by this powerful weapon.

Three or four weeks of inunction will produce sufficient effect on the mouth, and the inunction of half the quantity for a similar period is advisable, even if all the symptoms have disappeared. The ulceration of the gums is an objection to salivation, but if you keep them clean, wash them with chlorate of potash solution—some of which may be swallowed—or pencil them with a fine point of nitrate of silver, as first suggested by Wallace, they quickly heal.

Acetate of lead checks salivation, probably by eliminating the mercurial albuminoids by the kidneys, instead of by the mouth. As for mercury, people have idiosyncrasies for lead, lotions of it having caused colic, and in one case of hæmorrhage which I was treating, the blue line appeared on the gums in twenty-four hours, after six four-grain doses of the acetate. If salivation is profuse, minute doses of atropine are effectual. Compressed tablets of chlorate of potash, if dissolved in the mouth, give much local relief, and the salt is swallowed. Placed behind the molar teeth, a tablet will gradually melt away during an hour.

A drachm of powdered sulphur mixed with mucilage as a bolus will often check salivation, as long ago stated by

Van Swieten. Mercury used externally does not irritate the alimentary mucous surface as its internal use does, and in the latter mode we were often forced to stop the drug, owing to diarrhœa or utter want of appetite and digestive action.

The old-fashioned and perhaps correct view was—the stomach for food, the skin for mercury in the cure of every case of constitutional syphilis.

Mr. Jonathan Hutchinson writes about this mode of using mercury as follows:—"At Aix-la-Chapelle, which may, I suppose, in some sense be regarded as a better-class Lock Hospital for the North of Europe, amongst medical men of immense experience in the management of constitutional syphilis, the inunction plan still enjoys undisputed pre-eminence." It is used daily during the six weeks' stay. I have seen it extensively employed in Professor Kaposi's wards in Vienna Hospital.

In ordinary psoriasis, I usually employ mercurial inunction over the patches, and with excellent results, owing to its destroying power over microbes, if such be the local cause. That psoriasis is due in any way to syphilis in an atavistic form is very doubtful, from its being unaccompanied by any other manifestation of the poison. That it would be the result of the inherited syphilis of a parent is most unlikely from the frequency of the disease, and the smallness of the number of the hereditarily syphilised who become parents. The same objections arise against the idea now entertained by a few pathologists with regard to a relationship between cancer and syphilis. It is sometimes asserted that malignant neoplasms do not develop in the syphilised—and again, that their hereditary transmission is very doubtful.

Mr. John Marshall highly praises the oleate of mercury, for local application and for the production of the specific effect. Lewin and some others have advised the hypodermic injection of bichloride and other salts of mercury in secondary syphilis. The dose is from the sixteenth to the eighth of a grain dissolved in ten or twenty drops of water, and in-

jected once daily. It acts quickly, the dose can be regulated with nicety, but the injection gives great pain, and often causes much local inflammation. It is said to cause the fading of rashes which have disfigured the face, but there is risk of more permanent marking. The part of the rash where the injection is made improves much more than other parts, which fact demonstrates the local efficacy of the drug. The place where this is most apparent is the palm. After the hand has had its cuticle fully soaked by hot water with a little soft soap, the surface of the palm after being dried should be fully in-ointed (if a new syllable may be allowed) with mercury. Gloves should in most cases be then worn.

As an example of the many brilliant medical men—the patients do not, of course, count—who have been possessed by an unreasonable enmity to mercury, let me quote Prof. Hughes Bennett (*Clinical Lectures*, 1858, p. 783) :—" Syphilitic diseases of the skin are, in my opinion, the various disorders already alluded to (all of Willan's orders), modified by occurring in individuals who have suffered for periods more or less long, from the poisonous action of mercury." His subsequent reports on the physiological actions of the metal, in which he denied it any cholagogue power, therefore need not create surprise. Once again may be quoted John Hunter's exclamation, " Nothing can show more the ungrateful and unsettled mind of man than his treatment of this medicine."

The permanently injurious effects of mercury have been greatly exaggerated, and you will be astonished to find how quickly mirror-silverers who have been drenched with the poison improve under iodide of potassium, baths, and good diet, of which milk forms a large part.

Eczema mercuriale I have not seen, or at least recognised as an entity ; the rash so commonly brought out by the rubbing in of mercurial ointment, especially on the penis or scrotum, is quite different from the disease described by Sir T. Moriarty and Mr. Alley in 1804. The latter gives the following description, which may be worthy of full quotation :—

"As the Hydrargyria has been mistaken for other diseases, the following brief recapitulation of its most leading features is subjoined—1. The eruption is, for the most part, at first vesicular. 2. The fever and eruption are generally synchronous in their appearance. 3. Exfoliation of the cuticle usually takes place about four days after the appearance of the eruption, and is commonly preceded by soreness of the throat and fauces. 4. In severe cases, blisters, sometimes large vesications, precede desquamation. The cuticle, in such cases, cracks and forms fissures, and the odour of the exudation from the surface is strongly characteristic of the disease. 5. The presence of the delirium ferox has never been witnessed, however considerable the inflammation and tumefaction of the external parts of the head; nor has the head appeared engaged, excepting where the debility was extreme, and the exudation from the surface profuse. 6. When the cuticle desquamates, the parts underneath appear red, as before that occurrence. 7. The disease is never fatal, unless secondary fever supervene. That the production of the troublesome and dangerous affection just described is attributable to the employment of mercury in peculiar habits, the following facts tend incontrovertibly to confirm: 1. Mercury aggravates the symptoms of the complaint when produced. 2. By discontinuing merely the use of mercurial preparations, the progress of the disease will often be suspended. 3. The disorder may be reproduced by an incautious or too early recurrence to the exhibition of the mineral. 4. Somewhat similar cutaneous affections are the consequences of other irritants besides mercury; and those also admit of relief from the removal of the exciting causes.

"A peculiarity of habit, or a certain state of the skin itself, has been supposed as predisposing to this disease, and appears, indeed, to be actually requisite for its production."

If it were dependent on idiosyncrasy, it is unaccountable that such has disappeared. Ptyalism never appeared in such cases.

After having investigated the effects of mercury on all the mirror makers in Dublin for many years, I got no trace of any eruption like this (see *Medical Press and Circular*, 1866 and 1870). I may mention that, notwithstanding the drenching of their systems with mercury, silverers are susceptible of the venereal poison in its worse forms, and even may require the internal administration of that medicine to cure them, if they have been long absent from the factory. Nearly all Alley's cases were in Lock Hospital patients, whose dose of mercury was counted by the number of pints of saliva discharged daily—the mode prescribed by Astruc about the middle of the last century. Some of the cases may have been really venereal rashes; others, patches of the reduced metal deposited in the deepest cuticular layer, as in cases of silver discoloration. French dermatologists have recently described erythema following the internal use of mercury.

We have now to consider the treatment of those tertiary syphilides in which the specific action of mercury need not be induced as the transmissibility of the poison is no longer in force and its antidote is not called for. They are fairly indicated by the presence of gummy tumours in any situation—in fact wherever there is connective tissue, tendency to rapid ulceration, or great cachexia. On the contrary, when the rash has any scaly character, mercury is the remedy to be relied on alone, irrespective of the time which has elapsed after infection. Secondary manifestations are usually symmetrical and leave no scars, while the lesions known as tertiary result in deformity of the part. In the one patient we often find symptoms which are referable to the secondary and the tertiary as ordinarily distinguished. Tertiary manifestations sometimes develop, or rather are determined as the result of local irritation or injury.

Iodide of potassium was first proved to have value in tertiary syphilis by William Wallace, of the Irish College of

Surgeons, where so many proofs of his talent and industry are preserved. While we feel proud of his surgical services, we must condemn his unscrupulous cruelty towards his own race, in inoculating with the terrible virus of syphilis previously healthy persons. He thereby first established the contagiousness of secondary syphilis, chancres resulting when its pathological products were introduced. Philanthropists of the class who nowadays abhor vivisection cannot have existed, for no objections were raised. Typhus, which has deprived Ireland of so many medical leaders, proved fatal to Wallace in 1837, when, although of but middle age, he was senior surgeon to Jervis Street Hospital. His investigations on the skin, especially that of negroes, published shortly before his death, prove him to have been a most able physiologist.

Five to ten grains of iodide of potassium is the usual dose thrice daily, but such enormous quantities as drachm doses I have seen given in the wards of Professor Kaposi in the Vienna Hospital, apparently without the slightest ill effect. It is very suggestive that in syphilitic cases they rarely cause iodism, a fact something like the tolerance of mercury by infants full of the syphilitic poison. It may be that their only function is the solution of accumulated mercury and its subsequent elimination.

The addition of about half the quantity of carbonate or of chloride of ammonium, and of plenty of water, renders the iodide more active and less irritating. In other cases where debility is prominent, decoction of bark should be the vehicle. Milk disguises the unpleasant taste of the iodides. The iodides of sodium and of lithium are said by some to be more stable and therefore less apt to cause irritation of the skin and mucous membranes. As, however, there is much reason to believe the salt is decomposed, and that the local effects are due to the elimination of iodine, such symptoms, although troublesome, may well be submitted to. Few practitioners can recall good results from iodides, except in cases where the bones and fibrous tissues were concerned or gummata deposited. They do

no good to the earlier syphilides, and indeed confuse matters frequently by the rashes they excite and which present at least one characteristic in common, polymorphism. Rashes are said in the United States to follow in half the cases in which iodine or its compounds are taken. If this be so, renal disease must be much more frequent there, for when the drug passes away freely in the urine no trouble arises. As eruptions from these and other drugs never follow in the places where they are subcutaneously injected, it seems likely that they act on the vaso-motor centre, as was stated to have been also probable in the case of the purpura of epidemic meningitis (page 48). In the numerous cases where it cannot be declared that the symptoms are secondary or tertiary alone, but where they overlap, as it were, the cautious use of mercury first and the iodide afterwards is advisable. Many, however, prefer to use these chemical agents combined, and certainly Donovan's solution in twenty-drop doses is most serviceable in the more obstinate of the syphilides. The arsenic in it might be without disadvantage omitted. A compound of biniodide of mercury with iodide of potassium is given on the Continent in the form of Gibert's syrup, made of ten parts of biniodide of mercury, twenty parts iodide of potassium, to 300 parts of syrup of gentian. The inunction of mercury, and the taking of the iodides internally is a mode of uniting these potent chemicals in the tissues or in the blood which promises much. Minute globules of the metal have been found in the sweat glands and lymphatic glands near places where blue ointment was rubbed in. Much less is cast off by the kidneys than when it is exhibited in other ways. The bichloride in tincture of bark is a frequent routine prescription—but it is usually very uncertain. Analysis has found it in the urine two hours after it was given by the mouth. However, we have the old and great authority, Hunter, teaching us that all mercurial preparations act in like manner, for they are all changed if taken into the alimentary system to one compound, which I have endeavoured to prove is the bichloride (*Medical Press*

and Circular, April, 1870). As there stated, a peculiar albuminoid is found in the urine and saliva of mercurialized patients, and much less albumen in the blood. There is no difficulty in believing that the copper and lead salts would act equally well with mercury in coagulating the low form of fibrin which abounds in the blood of syphilitic patients, but they would give rise to more injurious systemic effects. Purgatives, diuretics, the iodides or other eliminants would be required to remove the effete matter.

In weakly patients, with ecthyma or rupia, and already treated with mercury, good diet and red wines, beer or stout are the best medicines, but bark preparations, with nitric acid or syrup of iodide of iron and cod-liver oil, most largely give aid. It must be, however, acknowledged, that no one of Mr. Hutchinson's well-known propositions is more true than the following :—"It has not been yet proved that there are any special forms of syphilitic disease in which mercury ought to be avoided, although as a rule it is acknowledged that it must be used with more caution in all forms which are attended with ulceration."

It is especially the tertiary symptoms which cause anxiety to the unlucky patients, many being well advanced in life, and probably parents, who have fully believed that all traces of youthful indiscretion had vanished. The appearance of any syphilitic rash or ulcer preys constantly on their minds, and opium or hydrate of chloral is indispensably needed to procure sleep.

You will have understood then from what has been said, that if syphilis be contracted the patient has much to suffer, much to dread, but that his misery is not likely, under proper management, to be lifelong. It is wonderful how the cheerfulness produced by confidence in the treatment promotes recovery and prevents that dire affliction, syphiliphobia. It may be premised that about 95 per cent. of syphilitic cases undergo complete cure; but it must be allowed with Keyes that "probably no remark made about syphilis is absolutely true." Dr. Gowers, in his Lettsomian Lectures just delivered, throws much doubt on its curability. However, the possibility of re-infection,

which is now undoubted, seems to prove that complete cure is attainable. It must be always remembered that, as is the case with all exanthems, the second attack is much modified, and will yield to much milder measures.

In very late symptoms guaiacum, sarsaparilla and other drugs from the vegetable kingdom, have still some advocates. The very facts that they had a trial of a couple of centuries after the Venereal was first known upon the discovery of America, and were found wanting, and that most reliable observers in the United States within the past twenty years have tested such remedies with negative results, have made me an unbeliever in their powers.

All the sulphur waters—Harrogate in England, Moffat in Scotland, Lisdoonvarna and Lucan in Ireland, and Barèges, Aix-la-Chapelle and Aix-les-Bains on the continent for examples, often work wonders in removing old scaly venereal rashes, as well as other evils of that fearful taint. The bromo-iodine water of Woodhall, Lincolnshire, which holds over 4 grains of bromine and ·62 of iodine in each gallon, is gaining great repute in tertiary syphilis and chronic gout. The Woodhall water, if abundant enough to give natural baths should be, owing to its great amount of chlorides, most useful in treating late syphilitic ulcerations and gummatous cavities.

Local treatment of syphilides is far less important than internal medication and regimen, but in the case of ulcers it is urgently called for. When rashes of any variety are slow in disappearing, mercurial ointments and washes may be used with local benefit—a fact in favour of the inunction method of producing the specific effects. When the palms and soles are affected they are nearly always necessary, the previous use of salicylic acid being also often called for, or the paring away of the thick cuticle with a razor. Gummata should not be interfered with, as reliance may be placed on internal medication with iodides and hygiene. Unluckily they are sometimes mistaken for abscesses and poulticed. When the skin breaks, iodoform is the best application. It is a misfortune that the drug has such an odour. It has been fairly

said that the person using it might as well wear a placard inscribed "Syphilis."

The spread of the serpiginous or perforating ulcers is to be checked by caustics, and the melted carbolic acid is fairly effectual and slightly painful. Hardy uses a pomade of one part each of sulphuret of mercury and oxide of lead to thirty of lard. However, there are many cases in which actual cautery (Paquelin's preferably) will alone stop rapidly destructive ulceration. Some years ago, in a case which Dr. R. M'Donnell saw with me, fearful phagedenic sores in the scrotum and perineum were only arrested by the fullest cauterisation on three occasions under ether. In this case the primary lesion occurred nine years previously.

Inoculation with the poison—syphilization, as it was afterwards called—seemed to have been as hurtful to the human race as vaccination was salutary, and if you read Continental works you will be horrified to learn with what coolness they inoculated with syphilitic virus, or a mixture of it and vaccine lymph. Soon after, cruelty to animals became a sensational subject, but cruelty to man should have excited our sympathy more deeply.

It is in the treatment of eruptions from syphilis in infants about one or two months old that mercury has such astonishing therapeutical power. If it be withheld the patients will perish, while so tolerant are they of the drug, that it seems to do no harm as long as it has an abundance of specific pathological products to expend itself upon. The almost universal mode of administration is to rub every morning round the child's waist about fifteen grains of mercurial ointment, and then to put on the flannel roller. In the child's bath next day the remains of the ointment are washed off. We have not the effects on the mouth to guide us to the proper quantity or time of administration; but the fading of the rash and the improvement of health are indications nearly as positive. This treatment by the mercurial belt might be advantageously extended to adults when gradual mercurialization was desired. An infant will often present an epitome of syphilis, the initial chancre

excepted, while the acquired form has a more truly chronic evolution with periodic developments. Most subjects of inherited syphilis present tertiary at the same time as secondary lesions, yet no one contends that iodides are called for, mercury deserving entire reliance. During suckling, or bottle, or spoon feeding the stomach cannot be trusted to retain any definite amount of mercurials; the healthiest babies often eject portions of their milk. The bichloride is sometimes manageable—in one-hundredth grain doses every three hours.

Although the subject has no bearing on therapeutics a brief allusion to an effect of the syphilitic poison on peripheral nerve-endings may be permitted—namely syphilitic analgesia discovered by Fournier, a remarkable phenomenon of which no explanation has yet been given. Needles may be thrust in deeply without causing pain, and the sensations of heat and cold are often lost while tactile sensibility remains. It usually begins with the earlier secondary symptoms, and lasts some months. It may affect the entire body, or any parts, usually symmetrically, the backs of the hands being the commonest sites. Females exhibit it much oftener than males. In rarer instances the vaso-motor system is affected and an algid state of the skin is produced, the temperature falling even to 77°.

THE IRISH SULPHUR SPAS.

I. *Lisdoonvarna.*—It is not proposed to discuss at any great length the actions of sulphuretted waters or the respective advantages of the various sources in the treatment of cutaneous affections, but merely to call attention to one which, although within twenty hours' journey of London, is as yet almost wholly unknown out of Ireland. Since 1871, when I endeavoured to make its value apparent, it enjoys much repute in that country. Sir E. Sieveking, in his Presidential address before the Royal Medical and Chirurgical Society, has shown the advantages in many instances which British health-resorts possess over foreign ones.

Aix-les-Bains (with its splendid neighbour Challes), Aix-la-Chapelle, and Baden near Vienna are deservedly the Continental favourites, the quantity of the sulphur compounds and the heat of the water being unrivalled qualifications. At the first place I have been always astonished at the flow of water—about a million and a third gallons daily—and at the variety and excellence of the baths and inhaling rooms, of which Professor Grainger Stewart is the most influential witness. About 3,000 persons are served daily. Of Challes, Dr. Vintras in his reliable work on the mineral waters of France, states: "This may almost be called an essence of sulphur water, yet it is also impregnated with iodides and bromides in larger proportion than any other known sulphurous water." Sojourns at the second, where mercurial inunction is so skilfully added, has vastly served patients I have sent there. I recently found Baden also a most reliable spa, and the scenery around is most beauteous. The vast sulphurous swimming bath is a special feature. In the humble Irish health resort now to be noticed these great curative agencies could be at least to some extent imitated, and therefore in the following pages allusion is made to the characteristics of other watering places—those mainly which I have visited.

Sir Robert Kane and Professor Apjohn had made analyses of the waters brought to Dublin, but much of their gases would have been lost. The *Proceedings of the Royal Irish Academy* record the results of the analyses made September, 1874, by Messrs. Studdert and Plunkett, partly on the spot, and partly in the College of Science. It should be premised that there had been great rainfall before the waters were collected, and they were thereby much diluted; a similar acknowledgment is made even at Aix-les-Bains.

"The temperature of the Gowlaun water, as drawn from the well (September, 1874), was found to be 11° C. (51.8° F.), the air at the time being 15.5° C. It contains, in addition to the usual constituents of well water, 5.553 cubic centimetres of sulphuretted hydrogen in the litre. The unoxidized sulphur exists entirely combined with hydrogen. It also contains traces of lithia. The following table gives the quantities of the several constituents:—

	Parts in 1 million.	Grains in 1 gallon.
Silica	13.6	.952
Sulphuric acid, calculated as SO_4	10.0	.700
Chlorine	29.6	2.072
Lime precipitated on boiling, calculated as Ca.	35.0	2.450
Lime retained in solution on boiling, calculated as Ca.	2.7	.189
Magnesia precipitated on boiling, calculated as Mg.	17.1	1.197
Magnesia retained in solution on boiling, calculated as Mg.	1.4	.098
Lithia	Traces.	Traces.
Soda, calculated as Na.	61.9	4.333
Potash ,, K.	3.0	.210

These substances may be calculated as being in combination thus:—

	Parts in 1 million.	Grains in 1 gallon.
Silica	13.6	.952
Calcic carbonate	87.5	6.125
Magnesic ,,	60.1	4.207
Sodic ,,	102.3	7.161
Calcic sulphate	8.1	.567
Magnesic ,,	6.0	.420
Sodic chloride	44.4	3.108
Potassic ,,	5.7	.399
	327.7	22.939

	c.c. per litre.
Sulphuretted hydrogen	5.553

The specific gravity referred to water at 15° C. was 1.0006.

"Of that remarkable pair the *Twins*, only one—the sulphur water—was flowing; it is essentially of the same character as the Gowlaun water. It contains 2.052 cub. cent. sulphuretted hydrogen per litre. The temperature was 11.6° C., the air being 15.4° C. The rate of flow was found to be one litre discharged in one minute and twenty seconds, or about ten gallons in one hour." The second *Twin* is a chalybeate issuing within a foot of the other. These chemists also examined the spas containing iron and manganese, and proved them to be of very great value.

The effects of the sulphur waters in cases of gout were so striking, that many years ago I suggested that they contained some quantity of lithia. I was aware that this alkali had not been found in any considerable amount in any other sulphur waters. In the recent analyses this appeared with the spectroscope. It is certainly hard to understand its efficacy while the daily quantity of the alkali we usually order is twenty grains; but although existing in minute amount it is considered the active ingredient of the water of Royat, that favourite resort for the chronic gouty. At Aix-les-Bains, lithia and iodides are often prescribed as an addition to the waters. It is not unlikely that Lisdoonvarna water may have high conducting power for electricity, to which many attribute the virtues of Gastein water. Any artificial imitation of this latter water does not exhibit that property.

There are many who, following Boerhaave, despise the labours of the chemist in regard to mineral waters, alleging that their powers are due to some undiscoverable matter or peculiar mode of combination, and that they, therefore, cannot be imitated. The water which has encouraged this notion in the greatest degree is that most fashionable one of Buxton; for no physiologist can attribute its effects to nitrogen, of all gases the most inactive. Yet, beyond 206 cubic inches per gallon of this gas, (according to Sir Lyon Playfair,) chemists find nothing extraordinary in it. Muspratt estimated the amount of the gas at the incredible

figure, 504 cubic inches. It is supposed that the skin softened by the water absorbs nitrogen freely. Many believe that the equable temperature, 82°, is the only therapeutical property. Such is my impression from observing the effects of baths of ordinary water maintained exactly at that heat. It is precisely at this temperature that cutaneous absorption in a bath most readily takes place. Some nitrogenous organic matter analogous to the *barègine* of the Barèges and several similar waters may be also present in that of Lisdoonvarna. The Zaison waters, near Kronstadt, contain fifteen grains of iodide of sodium to the gallon; and their efficacy in strumous cases is said to be wonderful. In the sulphur waters of Aix, in Savoy, there are also considerable quantities of iodine and bromine.

I would, however, in many cases, attribute the greater benefit derived from taking the waters at the source than when carried to the patient's residence, to the purity of the air, the simple and more temperate fare, earlier rising, and more active habits, and above all, to rest from the cares of commercial or professional pursuits, which are enjoyed at such a place as Lisdoonvarna. There, indeed, the mind may be allowed to lie fallow. Indeed it must do so, unless one lays in a stock of novels or pleasant books of other kinds. Excursions may be made to very interesting places, but the amusements usual in English and Continental health resorts have never been attempted. The only waters which are much better drunk away from, than at, the source, are those of Saratoga, New York State; for the fast life there seemed to me, when a visitor, far more likely to cause than cure diseases. Most of the eight hundred people in the chief hotel seemed to vie with each other in extravagancies of dress and habits.

Sulphur waters never bear carriage well, nor indeed exposure to light or shaking, and for these and many other reasons—for instance, the complete and beneficial change of life—the waters must be drank at the spas. Those of Cauterets in the Pyrénées are bottled without coming into contact with air and keep fairly. The admirable iron

waters of Lisdoonvarna may be sent away, if most carefully bottled under the water. The top of the bottle should be filled with carbonic acid and closely sealed. They might be used with advantage if the patient were meanwhile residing and inhaling pure air with plenty of ozone, at some mountainous spot, as Bohernabreena, or Ballinascorney in the neighbourhood of Dublin (which have many natural features in common with Lisdoonvarna), or at some of the unsurpassed seaside places which surround that city. The rapid recovery of patients at the Blackrock Convalescent Home, in connection with St. Vincent's Hospital, has convinced me of the supreme efficacy of good air, even when unaided by any medical treatment.

As regards places within similar easy distance of London natural sanatoria may be said to abound—one example will suffice, Leith Hill, twenty-five miles away. No country could offer more picturesque scenery or a more perfect sanatorium, but dwellings for strangers do not exist. Of two places within two or three hours by rail the same want could not be said to exist—Hastings and Bournemouth, which as health resorts offering attractions of every kind are not equalled on the Continent. Their wondrously low death-rate for many decennial periods attest in addition their perfect artificial sanitation.

Those who live luxuriously must needs change their habits at the Lisdoonvarna spa; but it would appear, from the benefits which the poor, who are always forced to be moderate, derive there, that the efficacy of such a sojourn does not consist alone in abstinence.

The effects of drinking sulphur waters require further study; they are diuretic and diaphoretic, and stimulate the absorption of inflammatory deposits. The sulphuretted hydrogen is taken direct to the portal vein and in the liver combines with the iron of the decaying blood cells. It would also act upon other metals accumulated there. Elimination by skin is proven by the staining of silver articles which were worn. In the treatment for phthisis vaunted two years ago great amounts of this gas were passed into the rectum,

thence absorbed and exhaled by the lungs without injury. Even pure water drank in large amounts will increase the bile, perspiration, and other secretions. Sulphur, as well as phosphorus, is a constant element in albuminous tissues, and if it be not supplied in food, it may be necessary to introduce it medicinally. It is not generally known that the onion contains a large amount of sulphur, and is therefore a good article of diet in cases where that drug is indicated. The Spanish onion is mildly laxative.

I have myself known the Gowlaun water to have been most efficacious in cases of scaly skin diseases, psoriasis especially; in acne and in eczema of the class dealt with in the second paper (page 18), and above all in cases where there were successive crops of boils. The internal use of sulphide of calcium is most serviceable in these latter cases. In convalescence after rheumatic fever, in chronic rheumatism, rheumatic and atonic gout, scrofulous swellings in which the strength of the patient had not much suffered, and in later forms of syphilis, the waters have been most beneficial. It must be remembered that many manifestations of that poison may occur, although it appeared to have been dormant. Mercurialisation is also retarded by the use of sulphur waters. It has been lately stated that great relief is given in sciatica by keeping powdered sulphur round the whole limb inside the drawers and stocking. It may either act as a counter-irritant or by being absorbed, in probably a volatilised state. Great scaling off of the epidermis results. Also in some diseases of bones and joints, in which inflammatory symptoms had passed away, very great relief has been given by the persistent use of the sulphur water. Since this paper was first published, many patients with eruptions and chronic gouty affections, whom I had sent there, have reported most enthusiastically.

Many cases of chronic congestion of the liver, or abdominal venosity accompanied with hæmorrhoids, are said by various physicians to have been greatly served; and pure sulphur is an old remedy in such cases. The water has been prescribed in cases of enlargement of the spleen from

ague. In France and Germany sulphur water and baths have long had repute in cases of sterility and other female complaints, and local practitioners report favourably of Lisdoonvarna sulphur water in this class of cases. In the Military Sanatorium at Barèges, there were cured twenty-two out of twenty-nine scaly skin diseases; and of three hundred rheumatic cases, one hundred and twenty-five were cured, and one hundred and thirty-six improved. Tradesmen, who suffer from the paralysing effects of mercury, lead, or copper used in their employments, are said to be benefited by the use of the sulphur waters; but, as I have stated elsewhere, these poisons act by destroying the blood constituents, and good food and iron should be the proper form of treatment. The same may be said of chorea and some other nervous affections. The Gowlaun Spa is popularly believed to be useful in consumption; but the pure, moist, and rarefied air, which induces greater activity of respiration and circulation, and greater freedom of expectoration, should have got the credit. The sulphur water is very useful for gargling—that ablutionary process so much neglected by the healthy, and by those weakly in the breathing organs. The iron waters are certainly more of use in the stage of tuberculosis attended by great weakness. The climate is too cold and unstable for many pulmonary invalids. In chronic bronchitis and asthmatic affections, great relief has been given to individuals in whom the gouty diathesis was proven to have existed.

The proper dose of mineral waters varies, as does that of any drug according to the age and constitution of the patient and the nature of the malady. The most commonly advisable quantity of the Gowlaun water is from two to eight tumblers (that is, half-pints) daily; and the more divided this quantity is, the better—a stroll for some minutes intervening between the draughts. Before breakfast is the best time for drinking, but a lesser quantity may be taken an hour before lunch and two hours before dinner. If too long continued, bloodlessness is produced; and at the

French sulphur springs loathing, with symptoms of catarrh, a condition termed "*grippe*," is described.

In many cases I would suggest the addition of the granulated effervescing sulphate of soda or citrate of magnesia, in doses of one teaspoonful, or a wineglassful of Friederichshall water in the first morning draught, or ten grains of the aloes with myrrh pill at bedtime ; but these and many other points with regard to diet, &c., can be only determined by the physicians who prescribe the spas, and who, being acquainted with their respective effects, can determine which is most suitable, and in what doses. The absence of any aperient matter is, in other instances, very beneficial, the sulphur in such cases being most readily absorbed. The water most similar in composition to this one is that of Töplitz in Hungary, but it has a temperature of 135°. In many other sulphur waters the patient must drink many grains of purgative salts in every tumblerful. A few examples follow. The Harrogate water (Montpellier; the many other sources vary widely—a matter of importance) contains 803 grains of common salt per gallon, and that of Aix-la-Chapelle (Kaiserquelle) 162 grains. One of the Chittenango waters, New York, lately analysed by my friend Professor Chandler, contains rather more sulphuretted hydrogen than Lisdoonvarna, but like many European spas it is encumbered by 115 grains of sulphate of lime—a salt which is most highly promotive of dyspepsia. The waters of Francis Street, Dublin, famous during last century, contained much common salt and nitre, for the residuum "crackled and fled on the red-hot iron, and emitted a smell like aquafortis." Considering this fact, and the unclean origin of their solid contents (38.6 grains, including over four of organic matter, with much nitrous and nitric acid compounds, per gallon, as investigated, in 1866, by Professor Sir C. Cameron and myself), it is wonderful they did not cause enteritis or pythogenic fever. They likewise were drunk in vast quantities.

Dr. Rutty records the following case:—"A man, aged forty-eight, exposed to the inclemency of the weather, in

an open shop, was suddenly seized with a beginning palsy in the tongue. His speech became very indistinct, and the motion of his limbs failed much. He began the use of the water in summer (1748), drank it warm, and sometimes with Glauber's salt, and in large doses, sometimes to five or six quarts at a time ; and on three or four doses finding himself better, continued its use, sometimes once, sometimes twice, a week during the summer, and A.D. 1749 was pretty well recovered." The doctor was of opinion it cured by "some degree of a potentially drying and warming operation."

Dr. Faussett, who had much experience of Lisdoonvarna, judiciously remarked :—"In the treatment of chronic and obstinate constipation, and in a variety of dyspeptic and bilious disorders, in which a large amount of vital depression is sometimes associated with pent-up secretions, there can be no doubt but that the patient will often be benefited by the gentle but continued action of a mild saline aperient, added to the mineral water, in the manner already suggested. This, at first thought, may be irksome to the invalid, who would naturally rather confide in his spa, and "have a truce with doctoring"; but a little reflection will show that the option of choosing an eligible aperient, when such becomes indispensable, is preferable to the practice of imbibing an ineligible one with each draught of the spa, whether an aperient happens to be required or not. Besides this, there can be no less valid reason for altering or qualifying the water of a spa, in order to render it subservient to our purpose, than there exists for dealing summarily with any pharmaceutical agent, or with any of the ordinary products of the earth that man requires for his daily use or sustenance."

He recorded a case of most obstinate eczema, which was greatly benefited by the sulphur spas. Harrogate had been twice visited in vain ; and low diet, general bleeding, and every variety of internal and external remedies, prescribed by many leading physicians in London and Dublin, had failed.

Neither the sulphur nor the iron water should be drunk by persons in health, nor by those for whom a practitioner has not prescribed them; and several examples of their injurious and even dangerous effects, when incautiously taken, have come to my knowledge. Persons who show any feverish symptom, who are plethoric, or subject to apoplectic warnings, or who suffer from organic disease of the heart, would be seriously injured by them.

In most skin diseases, and in rheumatic cases, greater benefits are expected from the use of the sulphur-waters, as reclining and vapour baths and *douches*, than from their being taken internally. German writers often regard baths of sulphur waters as having no more effects than indifferent waters, but there is evidence of the absorption through the skin of sulphuretted hydrogen and the soluble sulphides, the latter especially at Bagnères-de-Luchon. There the water on exposure becomes milky owing to precipitation of sulphur. In France there is great faith in its springs, many of them being supported by the State, and several having establishments for the cure of invalided soldiers. The authorisation of the Academy of Medicine is usually required for the institution of new sources, and inspection is constant and real. New sulphur sources having been lately discovered, capital baths are now available at Lisdoonvarna, and visitors who for many previous seasons had come to drink the waters, testify to the great additional curative effects they produce. These baths are of the following varieties:—Hot and cold, reclining and shower baths of spring water; sulphur water and artificial baths, such as alkaline, nitro-muriatic acid, bran and gelatine. For some of these kinds a physician's prescription is required. Sea baths at Doolin, which is but three miles away, would be more desirable in some cases, and they are most enjoyable for the healthy persons who may accompany an invalid. There is a Turkish bath at Ennis, and under medical advice it might be used before or after the waters were employed.

At Barèges, in the Pyrénées, the sulphur water is very

scanty, and many persons use the same bath—a practice neither useful, cleanly, nor safe. A patient of mine, afflicted with rheumatic gout, has lately returned from St. Amand, the famous watering place in the north of France, and he believes much more fully in the moor or mud bath there than in the waters. Both are similarly impregnated, but the mud has a large amount of precipitated sulphur. Patients remain in the mud (which has a temperature of about 77°) about three hours, during which they may read or take their meals.

In order to prevent the escape of sulphuretted hydrogen, the water should not be boiled; but ordinary boiling water should be added, in about the proportion of one-fourth to three-fourths of the spa water, which will give a tepid bath of about 92 degrees. The baths, too, may be heated by steam-pipes. The water should not be violently shaken or pumped, if possible, but the baths should be made on a lower level than the springs, so as to insure a natural flow of the water at all times. If the quantity of water prove insufficient, that of the river immediately contiguous can be utilized for ordinary baths, or the sulphur water may be imitated by the addition of what is known as Vleminckx's solution. This is made by boiling half an ounce of lime and an ounce of sublimed sulphur in ten ounces of water, until six ounces remain. The solution is then filtered. An ounce is said to be sufficient for twenty or thirty gallons of water, but much more may be used. As the quantity of sulphuretted hydrogen is after all small, it is the alkaline water heated to the right degree, which is largely efficacious. The sulphur enters the system by the lungs inhaling the gas, as well as by the skin absorbing it. So long as there was no opportunity for bathing of any kind, half the advantages of the invalid's sojourn were not attained. Moreover, there are few people in the world who require more to be indoctrinated in bathing habits than the majority of those who resort there. It may be noted that the Gowlaun water is exquisite for toilet purposes, always provided no powders or cosmetics containing lead have been used,

when a very unbecoming patchy negro complexion might develop.

It is said that the drinking of the Gowlaun water has caused a slight papular eruption, similar to the rash termed *la poussée* (thermal fever), at the Continental spas, from the use of baths or similar water. It is regarded as harmless, or even beneficial, and does not indicate that the course should be discontinued.

Some of the persons whom I have seen using the sulphur water are ill-fed, poor persons, crippled with rheumatism, and they were in the habit of drinking the iron water afterwards, for the third or fourth week of their stay. In such bloodless constitutions this was serviceable; but such a practice would be injurious to most of the richer patients who are ordered to the spas.

As the skin becomes susceptible of chills, the sulphur water, internally or externally, should be stopped the day before leaving Lisdoonvarna.

The season includes June, July, August and September, and in some years October is a very fine month there. Then Bath becomes the resort of the United Kingdom for months when Continental springs are not to be thought of.

Historical and topographical information touching Lisdoonvarna may be found in a guide book, to which the learned physician of the place, Dr. Westropp, has contributed, or in one which I wrote for Ward and Lock, publishers, Salisbury Square, E.C. The following details may interest intending visitors.

Ennistymon, the nearest railway station, 160 miles from Dublin, may be reached in seven hours, and thence vehicles complete the journey in about an hour.

During summer an agreeable route is by Galway, four hours by the Midland Great Western Railway, and from that most interesting old city a steamer crosses Galway Bay in an hour to Ballyvaughan. The drive from this place occupies one and a-half hours, along a most picturesque and gradually ascending road.

Circular tours embracing the South and West of Ireland are arranged on very advantageous terms by the above-named railway company.

In Lisdoonvarna there are six hotels, in which the weekly rate for board is about £2 to £3, and there are houses and lodgings to be had very cheaply.

The district is most interesting to the botanist, the geologist, the antiquarian and also to the student of the politico-economical and social problems concerning Ireland, which just now are so generally discussed. Facilities are freely given for most agreeable excursions.

The climate, although moist, is very mild, the mean temperatures being—spring, 48.2, summer, 57.9, autumn, 52.5, winter, 43.4, and whole year, 50.5

The limestone soil very rapidly becomes dry by draining off rain to the numerous rivers, and the roads quickly tempt the pedestrian, although the scavenger was a few years since a functionary unheard of. Now the sanitation of the place is of modern form. The air, blowing from the Atlantic over three miles of intervening mountains, is genial and bracing, very free from organic matter, and abounding in ozone. The town is nearly six hundred feet above the sea level, and as is usual in such situations, exercise can be taken with very little fatigue, while a sun and air bath is being enjoyed.

II. *Lucan.*—This sulphur spa was very popular for the last quarter of the eighteenth century and the first quarter of the present. During a Sunday in August, 1794, there passed on the road leading to it 438 vehicles, 451 horsemen, and many thousand pedestrians. From the year of its discovery, 1758, till 1770, Dr. Rutty published several striking cures by it, especially of skin diseases, and it was at the same time used in Dr. Steeven's Hospital. It was constantly diaphoretic, occasionally caused vertigo, and brought out a rash like that now known at Continental spas. He records an extraordinary custom—the washing

of ulcers with the urine passed after copious libations from the spa. The beauty of the exquisitely wooded demesne in which the spring lies at the edge of the Liffey, and of the whole district and its proximity to Dublin, make it a delightful resort. Steam trams start from Phœnix Park Gate every half-hour and cover the eight miles in twenty minutes.

Professor Apjohn, by an analysis made at the well, found nearly four and-a-half cubic inches of sulphuretted hydrogen per gallon, and later examinations give a larger proportion. The flow is about eighty gallons per hour. Professors Sir C. Cameron, Emerson Reynolds, F.R.S., and Tichborne have recently made analyses. The water is alkaline, having thirty-five grains of the carbonates of the alkalies per gallon. It is brisk to the taste from carbonic acid and usually eight degrees colder than the atmosphere, and from these characteristics it is much less disagreeable in drinking than waters containing a smaller proportion of sulphuretted hydrogen. It has more aperient and diuretic effects than the Lisdoonvarna water, but is suited for much the same cases. The localities are strongly in contrast as to distance from a city, elevation, and climate.

The large building adjoining, formerly used as the Idiot Asylum (in the establishment of which Dr. Kidd was so influential), has been set up as an hotel for those using the waters. Further accommodation is provided in lodging-houses in the village, which has a population of 523. Such absurdities, advised in 1836 by the resident physician, as the washing of patients' clothes in the water, which, on drying, would lose all useful matters, and its use in boiling food, may have disgusted sensible people with Lucan. The only things analogous that I am aware of are the habits at Salies-de-Béarn in the Pyrénées, where the water is given mixed with chicken broth, and at Enghein near Paris, where the strongly sulphuretted water is mixed with milk. The popularity of the latter health resort, six miles outside the gay capital, may re-assure those who fear Lucan cannot flourish because it is near Dublin.

In 1795 "An English Physician" published an excellent essay on Leixlip Spa, near the aqueduct of the Royal Canal, and now about 150 yards from the Midland Railway Station. The temperature of the water was 70°, the flow sixty gallons per minute, and it appears to have been a valuable saline, only two miles distant from the Lucan Spa. On April 4th, 1875, I found its temperature 64°, that of the air and of the sulphur water at Lucan being 48°.

INDEX.

PAGE

Acne Rosacea . . . 51-69
Aix-la-Chapelle . . 77, 87
Aix-les-Bains 87
Alcoholic drinks . . 25, 83
American rhinoplasty. . . 70
Analgesia 86
Analyses of Lisdoonvarna waters. 88
—— —— Lucan waters . . 100
Angioma 51
Aperients 34, 94
Arsenic 25, 82
Asthma and eczema . . . 21

Baden, near Vienna . . . 87
Barèges 99, 93
Baths 17, 38, 87
Benzoated ointment . . . 23
Blood supply of skin . . . 5
Blue pill 73
Bronchial vessels . . . 11
Burns 39
Buxton 89

Cancer 27, 77
Capillaries of skin . . . 6
Capillary nævi 51
Carbolic acid . . .24, 55, 85
Catching cold . . . 16, 74
Caustics 85
Cautery 56, 59, 85
Cavernous tissue . . . 52
Cerebro-spinal meningitis . . 44
Chilblains 22
Chlorate of potash . . . 76
Clothing 16
Coca 73
Cod-liver oil . . . 34, 83
Colchicum 23
Cold baths 17
Congenital syphilis . . . 85
Constipation 25
Constitutional causes . . . 18
Contagious impetigo . . . 50
Continuous baths . . . 38
Curability of syphilis . . . 83

Dartrous diathesis . . . 18
Dermatitis 18
Dermatophyta 49
Dietary 20, 47

PAGE

Donovan's solution . . . 82
Drinking waters . . . 23

Eczema 18, 28
—— Gouty 18
—— of face 28
—— of nipple 28
Electrolysis 55
Elephantiasis 39
Epidemic meningitis . . . 44
Erythema, syphilitic . . 73

Flannel 16
Food as a cause of skin disease . 20
Fumigation, mercurial . . 73

Gibert's syrup 82
Glands, sebaceous . . 6, 28
—— Perspiratory . . . 6
Glycerine 34
Gout 19, 27
Gouty deposits 26
Gouty nature of eczema . . 19
Gummata 80, 84

Harlequin fœtus . . . 35
Harrogate 84, 94
Health resorts near Dublin . 91
—— —— —— London . . 91
Hebra's bath 38
Heredity 20, 33, 35
Herpes 46
Hydrargyria 78
Hygiene 38, 72
Hypertrophy 41

Icthyosis 30
—— Hereditary . . . 35
Impermeable dressings . . 30
Impetigo, contagious. . . 50
Inherited syphilis . . . 85
Injection of nævi . . . 53
—— Subcutaneous, of mercury . 77
Inunction 74
Iodides 80
—— eruptions 82
Iodine 81
Iodoform 84
Irish sulphur spas . . . 87
Iron waters . . . 89, 98
Italian rhinoplasty . . . 69

	PAGE
Jacob's ulcer	28
Lanolin	30, 34, 75
Lead	22, 76
Leeching	7
Ligature of nævi	54
Lisdoonvarna spa	87
Lithæmia	20
Lithia	22, 89
Lucan spa	99
Lupus	36
—— Erythematous	28, 37
Lymphangioma	58
Lymphatics	40
Mastoid vein	9
Mercurial eczema	78
—— ointment	30, 74
Mercury	49, 71
—— in syphilis	71
—— in psoriasis	74, 77
Mineral waters	87
Mirror silverers	78, 80
Mouth, Contractions of	59
Mud baths	97
Nævus	51
—— Cavernous	52
Nasal septum, bleeding from	9
Negro skin	81
Neuro-purpuric fever	44
Neuroses	27, 47
Nose, operations on	64
Oleate of mercury	77
Oral contractions	59
Osteo-aneurism	56
Paget's disease of nipple	28
Palms	84
Papules, syphilitic	73
Parietal veins	10
Perspiratory glands	6
Petechiæ	50
Plastic operations	59, 69
Polymorphism	20, 82
Posture inducing elephantiasis	39
Proto-iodide of mercury	73
Pruritus ani	22
Psoriasis	18, 77
Pulsating tumours	56
Purpura	44
Pustules, syphilitic	71
Rectum, depletion from	13
Rhinoplasty	64
Rhinoscleroma	68
Ringworm	49
Rodent ulcer	28
Rosacea	51-69
Roseola, syphilitic	71
Rupia	83
Salicylic acid	34, 84
Salivation	76
Scrofula	27, 37
Scrofulides	37
Scurvy	47
Sebaceous glands	6, 28
Seborrhœa	32
Secondary syphilis	71
Silver staining	5
Skin, vascularity of	5
Soap	34
Spas	87
Squamæ	32
Stomato-plasty	59
Sulphur	92
—— baths	96
—— spas	87
Symmetry	38
Sympathetic nervous system	47
Syphilides	71
Syphilis	71
Telangiectasis	51
Tertiary syphilis	80
Tonic treatment of syphilis	72
Topical blood-letting	7
Traumaticin	30
Trismus	62
Turkish bath	74
Typhus	48, 50
Ulcers	36, 85
Uric acid	19, 27
Uterus, depletion from	14
Vaccination for nævi	53
Vascularity of skin	5
Vaso-motor neuroses	48, 86
Veins	8
Venesection	12
Vessels of skin	6
—— —— limbs	14
Vleminckz's solution	97
Water	23
Watering places	87
Wisdom teeth	62
Woodhall spa	84
Woollen clothing	16
Xeroderma	31, 36
Zymotics	4

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INDEX.

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Adams (W.) on Clubfoot, 11
——— on Contraction of the Fingers, 11
——— on Curvature of the Spine, 11
Allan's Outlines of Infectious Diseases, 7
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Beale's Microscope in Medicine, 8
——— Slight Ailments, 8
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Duncan (A.), on Prevention of Disease in Tropics, 7
Duncan (J. M.), on Diseases of Women, 5
Dunglison's Medical Dictionary, 14
East's Private Treatment of the Insane, 5
Ebstein on Regimen in Gout, 9
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Fagge's Principles and Practice of Medicine, 8
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——— Natural History, etc., of Cholera, 7
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Fenwick's (S.) Chronic Atrophy of the Stomach, 8
——— Medical Diagnosis, 8
——— Outlines of Medical Treatment, 8
——— The Saliva as a Test, 8
Flint's Principles and Practice of Medicine, 7
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Fox (Wilson), Atlas of Pathological Anatomy of Lungs, 8
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Galabin's Manual of Midwifery, 5
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Goodhart's Diseases of Children, 6
Gowers' Diseases of the Brain, 9
——— Diseases of the Spinal Cord, 9
——— Manual of Diseases of Nervous System, 9
——— Medical Ophthalmoscopy, 9
Granville on Gout, 9
——— on Nerve Vibration and Excitation, 9
Guy's Hospital Formulæ, 2
——— Reports, 2
Habershon's Diseases of the Abdomen, 9
——— Liver, 9
——— Stomach, 9
——— Pneumogastric Nerve, 9
Harley on Diseases of the Liver, 9
——— Inflammations of the Liver, 9
Harris's (C. A.) Dentistry, 13
Harris's (V. D.) Diseases of Chest, 8
Harrison's Surgical Disorders of the Urinary Organs, 13
Hartridge's Refraction of the Eye, 12
Harvey's Manuscript Lectures, 3
Heath's Certain Diseases of the Jaws, 10
——— Injuries and Diseases of the Jaws, 10
——— Minor Surgery and Bandaging, 10
——— Operative Surgery, 10
——— Practical Anatomy, 3
——— Surgical Diagnosis, 10
Higgens' Ophthalmic Out-patient Practice, 11
Hillis' Leprosy in British Guiana, 13
Holden's Dissections, 3
——— Human Osteology, 3
——— Landmarks, 3
Hood's (D. C.) Diseases and their Commencement, 7
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Hooper's Physician's Vade-Mecum, 8
Hutchinson's Clinical Surgery, 11
——— Rare Diseases of the Skin, 13
Hyde's Diseases of the Skin, 13
James (P.) on Sore Throat, 12
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Mackenzie on Diphtheria, 12
——— on Diseases of the Throat and Nose, 12
Maclagan on Fever, 8
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Martin's Ambulance Lectures, 10
Mayne's Medical Vocabulary, 14
Middlesex Hospital Reports, 2
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Mouat and Snell on Hospitals, 4
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Nunn's Cancer of the Breast, 13
Ogle on Puncturing the Abdomen, 9
Ogston's Medical Jurisprudence, 4
Ophthalmic (Royal London) Hospital Reports, 2
Ophthalmological Society's Transactions, 2
Oppert's Hospitals, Infirmaries, Dispensaries, &c., 4
Osborn on Diseases of the Testis, 13
——— on Hydrocele, 13
Owen's Materia Medica, 7
Page's Injuries of the Spine, 11
Parkes' Practical Hygiene, 5
Pavy on Diabetes, 10
—— on Food and Dietetics, 10
Pharmaceutical Journal, 2
Phillips' Materia Medica and Therapeutics, 7

[*Continued on the next page.*

Pollock's Histology of the Eye and Eyelids, 12
Priestley's Intra-Uterine Death, 5
Purcell on Cancer, 13
Raye's Ambulance Handbook, 10
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Robinson (Tom) on Eczema, 14
——— on Syphilis, 14
Robinson (W.) on Endemic Goitre or Thyreocele, 12
Ross's Aphasia, 9
——— Diseases of the Nervous System, 9
——— Handbook of ditto, 9
Routh's Infant Feeding, 7
Royal College of Surgeons Museum Catalogues, 2
Royle and Harley's Materia Medica, 7
St. Bartholomew's Hospital Catalogue, 2
St. George's Hospital Reports, 2
St. Thomas's Hospital Reports, 2
Sansom's Valvular Disease of the Heart, 8
Savage on the Female Pelvic Organs, 6
Schweigger on Squint, 12
Sewill's Dental Anatomy, 12
Sharkey's Spasm in Chronic Nerve Disease, 10
Shore's Elementary Practical Biology, 4
Sieveking's Life Assurance, 14
Silk's Manual of Nitrous Oxide, 12
Simon's Public Health Reports, 4
Smith's (E.) Clinical Studies, 6
——— Diseases in Children, 6
——— Wasting Diseases of Infants and Children, 6
Smith's (J. Greig) Abdominal Surgery, 6
Smith's (Henry) Surgery of the Rectum, 14
Southam's Regional Surgery, 11
Squire's (P.) Companion to the Pharmacopœia, 7
——— Pharmacopœias of London Hospitals, 7
Squire's (W.) Essays on Preventive Medicine, 8
Steavenson's Electricity, 11
Stimson's Dislocations, 11
———Fractures, 11
Tecker's Dental Materia Medica and Therapeutics, 13
Sutton's General Pathology, 4
Swain's Surgical Emergencies, 10
Swayne's Obstetric Aphorisms, 6
Taylor's Medical Jurisprudence, 4
Taylor's Poisons in relation to Medical Jurisprudence, 4
Thin's Cancerous Affections of the Skin, 13
——— Pathology and Treatment of Ringworm,
Thomas's Diseases of Women, 6
Thompson's (Sir H.) Calculous Disease, 14
——— Diseases of the Prostate, 14
——— Diseases of the Urinary Organs, 14
——— Lithotomy and Lithotrity, 14
——— Stricture of the Urethra, 14
——— Suprapubic Operation, 14
——— Surgery of the Urinary Organs, 14
——— Tumours of the Bladder, 14
Thorowgood on Asthma, 8
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